Theoretical conceptualisations of firesetting by adults with intellectual disabilities: Development of a fire interest and attitudes assessment scale

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Conventions Used in this Thesis

Numbering Studies

All of the studies in this thesis are numbered independently of the chapter in which they appear.

Numbering Tables and Figures

All tables and figures are numbered in terms of the chapter in which they appear. They are numbered as figure or table *x.y*., with *x* referring to the chapter number, and *y*, the order that the figure of the table is presented within that chapter.

Abbreviations

Abbreviations are described within the text.

Acronyms

The following acronyms are used throughout this thesis:

DMAF: The Descriptive Model of the Offence Chain for Adult Male Imprisoned Firesetters (Barnoux, Gannon, & Ó Ciardha, 2014)

DSM-5: The Diagnostic and Statistical Manual of Mental Disorders-V (American Psychiatric Association, 2013)

FIPP: The Firesetting Intervention Programme for Prisoners (Gannon, 2012)

FOC-MD: Firesetting Offence Chain for Mentally Disordered Offenders (Tyler et al., 2014)

ID: Intellectual disability

IDD: Intellectual and other developmental disability

M-TTAF: The Multi-Trajectory Theory of Adult Firesetting (Gannon, Ó Ciardha, Doley, & Alleyne, 2012)

Abstract

Deliberate firesetting behaviour is an ongoing international problem, which has devastating consequences for victims and wider society. Adults with IDD who engage in firesetting have received little attention from researchers and practicing professionals, and this is particularly notable when the literature about firesetting is compared to other types of offending behaviour. The purpose of this thesis was to expand our knowledge and understanding of firesetting by adults with IDD across four separate but related studies.

The aim of Study 1 was to systematically examine and synthesise existing research to determine what was known about adults with IDD who set fires. The specific aims were to identify the prevalence of adults with IDD who set fires, highlight their characteristics and treatment needs, highlight offence related characteristics associated with deliberate firesetting, and evaluate assessment tools and interventions available to professionals working with this population. Several databases were searched for relevant articles, including PsychINFO, PsychARTICLES, Medline, CINAHL Plus with Full Text, Criminal Justice Abstracts, SCOPUS, Open Grey, and the University of Kent arson library. The methodological quality of studies was assessed using the Mixed Methods Appraisal Tool (Hong et al., 2018). Systematic searches of the literature resulted in 100 articles that met the specific inclusion criteria. Findings indicated that adults with IDD shared some characteristics with other adults who set fires (e.g., aggression, impulsivity). They also faced additional challenges, which may have implications for treatment and risk formulation (e.g., communication difficulties, lack of support). However, research was generally of poor methodological quality, limiting our ability to fully understand the characteristics and treatment needs of this population.

The aims of Study 2 were to validate Barnoux et al. (2015) and Tyler et al. (2014) micro-level theories of adult firesetting with a sample of adults with IDD who have set fires, and offer a preliminary unified descriptive model of the offence chain for adults with IDD who set fires. Thirteen adults with IDD in England were interviewed about the affective, cognitive,

behavioural, and contextual factors leading up to and surrounding a recorded firesetting incident. Offence account interviews were analysed using a Grounded Theory approach. The resulting model consisted of four main phases: (1) background, (2) early adulthood, (3) pre-offence period, and (4) offence, and post offence period. The model accounted for prominent precursors to firesetting within this population including mental health deterioration, poor problem solving, and new motivations for firesetting. Unlike other offence chain theories, the Firesetting Offence Chain for Adults with IDD highlighted the significance of post offence behaviour and cognitions (e.g., an attempt to extinguish the fire).

The aims of Study 3 were to evaluate the accessibility of scales that appraised fire-related factors likely to be associated with firesetting behaviour for adults with IDD, and to develop an accessible self-report scale of fire-related factors likely to be associated with firesetting behaviour. Qualitative and quantitative data from three rounds of a Delphi exercise with practitioners and a focus group with adults with IDD were used to generate consensus about the accessibility of item adaptations made to the Fire Interest Rating Scale (Murphy & Clare, 1996), Fire Attitudes Scale (Muckley, 1997), and the Identification with Fire Questionnaire (Gannon et al., 2011). Findings suggested the accessibility of current measures could be improved to better meet the needs of adults with IDD, and adaptations to all questionnaire items were needed. Following feedback, revisions to current measures were implemented leading to the development of the Adapted Firesetting Assessment Scale for adults with IDD.

The aims of Study 4 were to investigate the reliability, validity, comprehensibility, relevance, and comprehensiveness of the Adapted Firesetting Assessment Scale when used with adults with IDD. Fifty-nine adults with IDD, some of whom had a history of firesetting completed the Adapted Firesetting Assessment Scale (AFAS) on two occasions. Feedback about the questionnaire was sought from both participants and professionals. The AFAS had acceptable internal consistency and good test-retest reliability. The attitudes towards fire, fire normalisation, poor fire safety subscales, and total scores discriminated firesetters from non-firesetters. Content analysis of feedback indicated the AFAS was easy

to understand, relevant, accessible, and comprehensible. Findings offered some preliminary evidence to support the use of the AFAS with adults with IDD who have a history of firesetting.

The following conclusions were drawn from the combined findings. While there is evidence of a lack of research in this area relative to those without IDD, adults with IDD who set fires present with some prominent factors including circumscribed interests in fire or emergency services, negative social environments (including negative caregiver experiences and negative educational experiences), fire-related vulnerabilities (e.g., serious fire interest), or other vulnerabilities (such as other comorbidities, communication difficulties, and social exclusion). Adults with IDD also present with prominent motivations for setting a fire, including being motivated by a desire to express emotion, cause change, or illicit support from others. In addition, their cognitive and affective responses to starting a fire suggested adults with IDD had difficulties in understanding the consequences of their behaviour. From the findings, it can be concluded that the Adapted Firesetting Assessment Scale contributed towards the evidence base pertaining to the assessment of adults with IDD. Preliminary evidence suggested the Adapted Firesetting Assessment Scale was accessible, comprehensive, relevant, and reliable, and is likely a useful resource for future researchers and clinicians.

Publications

Data and literature from this thesis have been reported in the following journal articles:

Collins, J., Barnoux, M., & Langdon, P. E. (2020). Adults with intellectual disabilities and/or autism who deliberately set fires: A systematic review. *Aggression and Violent Behavior*, 101545. https://doi.org/10.1016/j.avb.2020.101545 (See appendix)

Collins, J., Barnoux, M., & Langdon, P. E. (2022). A Preliminary Firesetting Offence Chain for Adults with Intellectual and other Developmental Disabilities. *Journal of Intellectual and Developmental Disability*. https://doi.org/10.3109/13668250.2022.2037186
(See appendix)

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Collins, J., Barnoux, M., & Langdon, P. E. (2022). The development of the Adapted Firesetting Assessment Scale. *Journal of Applied Research in Intellectual Disabilities*. https://doi.org/10.1111/jar.12965 (See appendix)

Data and literature from this thesis have been reported in the following conference publications:
August 2021 Paper at European Association of Psychology and Law, Virtual Conference. Adults with intellectual disabilities and/or autism who deliberately set fires: A systematic review.

June 2021 Paper at 6th International Association for the Scientific Study of Intellectual and Developmental Disabilities Europe Congress, Amsterdam, Netherlands. Adults with intellectual disabilities and/or autism who deliberately set fires: A systematic review.

June 2021 Paper at 6th International Association for the Scientific Study of Intellectual and Developmental Disabilities Europe Congress, Amsterdam, Netherlands. A Preliminary Firesetting Offence Chain for Adults with Intellectual and other Developmental Disabilities

April 2020 Paper at the National Autistic Society Autism and Offending Behaviour Conference, Newcastle-Upon-Tyne. Adults with intellectual disabilities and/or autism who deliberately set fires: A systematic review.

December 2019 Poster at the Seattle Club Conference London, UK. Adults with intellectual disabilities and/or autism who deliberately set fires: A systematic review.

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Chapter 1

Introduction, Terminology, and Prevalence of Firesetting in IDD

Introduction

The Fire and Rescue Service attended 63,712 incidents of deliberate firesetting over the financial year 2020 to 2021 in England, which resulted in 59 fire-related fatalities and 880 non-fatal casualties requiring hospital treatment (Home Office, 2021a). Deliberate firesetting incidents have consistently accounted for almost half of all fires attended by Fire and Rescue Service in England (Home Office, 2021a). Consequently, the economic cost of deliberate firesetting was estimated to be £1.49 billion within England and Wales (Arson Prevention Forum, 2017). Despite the high impact of deliberate firesetting, and what appears to be the first research study having been conducted by Lewis and Yarnell in 1951, only recently have more comprehensive reviews of the literature on adult firesetting been published (Allely, 2019; Gannon & Pina, 2010; Nanayakkara et al., 2015; Omar, 2014; Tyler & Gannon, 2012; Tyler & Gannon, 2021). However, prevalence rates, characteristics, and risk factors associated with adults who set fires vary depending on the study design and recruitment strategy.

Studies investigating deliberate firesetting behaviour have rarely used nationally representative samples, except for the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC; Blanco et al., 2010) conducted in the US. Findings from face-to-face interviews of more than 43,000 non-apprehended adults in the community between 2001 and 2002 suggested the lifetime prevalence of self-reported firesetting was 1.7% for men and 0.4% for women. In comparison, findings of a UK study suggested the lifetime prevalence of firesetting is higher (around 11%), although smaller samples of between 133 and 158 non-apprehended adults in the community were recruited (Barrowcliffe & Gannon, 2015; Gannon & Barrowcliffe, 2012). Rather than using nationally representative samples, researchers have predominantly recruited individuals from prison populations (e.g., Barnoux et al., 2015; Gannon et al., 2015; Ó Ciardha et al., 2015), inpatient psychiatric services (e.g.,

Tyler et al., 2014; Wyatt et al., 2019), and to a less extent community services (Nanayakkara et al., 2021).

Despite studies to date being limited by unrepresentative samples, an estimate of prevalence can be denoted from statistics published by the Home Office about adults in England and Wales. In 2021, approximately 1% of the prison population in England and Wales had a current conviction for Arson (n = 677 males, 84 females), and a further 879 adults with a conviction of Arson were under the supervision of the National Probation Service (n = 743 males, 136 females: Ministry of Justice, 2021). In comparison, the prevalence of firesetting appeared to be higher for individuals detained under the Mental Health Act (2007). In 2019 there were 4,899 adults detained under criminal sections in hospitals in England and Wales, and in December 2020, 525 had a current conviction for Arson (n = 382 males, 143 females) (Ministry of Justice, 2020; NHS Digital, 2021). This might indicate that arson is more prevalent among adults with comorbid mental health problems and more complex needs. However, estimates of prevalence have been limited as they have excluded the following groups: (i) fatalities or casualties associated with fires set to premises other than dwellings (e.g., vehicles, adults), (ii) adults outside of England and Wales, (iii) adults with an un-convicted history of firesetting, (iv) adults with a previous conviction for Arson, but Arson is not their primary offence, (v) adults whose offence involved firesetting, but who have been convicted for an offence carrying a higher penalty (e.g., murder), (vi) adults who set fires in hospital or prison and who have not subsequently been convicted. Therefore, the prevalence of deliberate firesetting and the harm caused is likely to be much higher than reported figures suggest.

Despite a limited amount of research being conducted to understand this type of offending behaviour, in comparison to other types of offending (e.g., sexual offending), firesetting continues to be a significant problem as evidenced by arson-related crimes often appearing in news headlines (e.g., Man charged over Northfield house blaze, BBC News, 2020; Man charged with arson after Antrim house fire, BBC News, 2021). Despite the media attention, a steady decrease in the number of deliberate fires set in England from 82,349 at

the end of 2018 to 63,712 at the end of March 2021 was observed (Home Office, 2021a). However, an annual decrease in all types of crime reported to police in England and Wales between 2019 and 2021 was noted, reflecting the increase in time adults spent at home during the lockdown period in the UK because of COVID-19 (Office for National Statistics, 2021).

Terminology

Arson, Pyromania, and Firesetting

Arson, pyromania, and firesetting have typically been used interchangeably to refer to individuals who deliberately set fires. However, these terms vary in their definition and scope, and therefore require consideration before a review of the relevant literature is conducted.

In England and Wales, *Arson* is a legal term used to refer to unlawful damaging or destroying property, either intentionally or recklessly, by fire and carries a maximum penalty of life imprisonment (Criminal Damage Act, 1971). In response to the devasting and wide impact of deliberate firesetting, sentencing guidelines released in 2019 provided courts in England and Wales with guidance on sentencing for Arson and Criminal Damage offences as follows: (i) Arson – criminal damage by fire, (ii) arson/criminal damage with intent to endanger life or being reckless as to whether life is endangered, (iii) criminal damage, racially or religiously aggravated criminal damage, and (iv) threats to destroy or damage property. However, the current legal provision for arson-related offences is limited to fires set to property and the associated consequences (i.e., dwellings, businesses, vehicles, bins, sheds etc.). The legal provision does not include other types of deliberately set fires (i.e., fires set to grasslands, woodlands, animals, adults, etc.). Further, under the Home Office Counting Rules for recorded crime, *arson* offences may be subsumed under more serious primary offences for which the individual receives a conviction (Home Office, 2021b). However, some arson perpetrators remain un-apprehended (Gannon & Barrowcliffe, 2012;

Barrowcliffe & Gannon, 2015). Consequently, the term *arson* is limited in scope as it is unlikely to include all acts of deliberate firesetting.

Pyromania refers to a clinical diagnosis within the Diagnostic and Statistical Manual of Mental Disorders-5 classified as an *impulse control disorder not otherwise specified* (*312.33,* p. 476, *DSM*-5; American Psychiatric Association, 2013). Within the ICD-11, pyromania is described as, "a recurrent failure to control strong impulses to set fires, resulting in multiple acts of, or attempts at, setting fire to property or other objects, in the absence of an apparent motive (e.g., monetary gain, revenge, sabotage, political statement, attracting attention or recognition). There is an increasing sense of tension or affective arousal before instances of firesetting, persistent fascination or preoccupation with fire and related stimuli (e.g., watching fires, building fires, fascination with firefighting equipment), and a sense of pleasure, excitement, relief, or gratification during, and immediately after the act of setting the fire, witnessing its effects, or participating in its aftermath. The behaviour is not better explained by intellectual impairment, another mental and behavioural disorder, or substance intoxication" (ICD-11, 2021). Due to the rigid criteria, diagnoses for *Pyromania* are rare (Nanayakkara et al., 2015). Reported prevalence rates of pyromania range from zero (Geller & Bertsch, 1985; O'Sullivan & Kelleher, 1987) to 10% of samples studied (American Psychiatric Association, 2013; Lindberg et al., 2005; Ritchie & Huff, 1999). *Pyromania* refers to a very limited number of individuals in the context of deliberate firesetting and is thus too restrictive to refer to the wide range of individuals who set fires.

Consequently, the term 'firesetting' has been widely adopted within the literature. The term 'firesetting' captures acts of firesetting that result in a conviction, acts of firesetting that do not result in a conviction but that were intentional, and also includes fires set by those with and without a diagnosis of pyromania. The term 'firesetting' will be used to describe all acts of intentionally setting fire to either property, land, other adults, or as an act of self-injurious behaviour or suicide, inclusive of pyromania and arson (Barnoux et al., 2015; Dickens & Sugarman, 2012; Gannon & Pina, 2010).

Intellectual and Other Developmental Disabilities

The phrase intellectual and other developmental disabilities (IDD) is a term used to describe intellectual disabilities, autism, and other developmental disabilities. IDD will be used throughout this thesis to describe autistic adults and adults with intellectual disabilities. Where the phrase intellectual disabilities (ID) is used, reference is being made specifically to adults without co-occurring autism. Although, the terminology used in specific studies will be adopted when reporting their findings.

The fifth edition of the Diagnostic and Statistical Manual (DSM-5) defines *intellectual disabilities* as neurodevelopmental disorders that begin in childhood and are characterised by intellectual difficulties as well as difficulties in conceptual, social, and practical areas of living. According to the DSM-5, a diagnosis of intellectual disabilities is made if three criteria are met: (i) deficits in intellectual functioning (e.g., reasoning, problem-solving, planning, and abstract thinking), as confirmed by clinical evaluation and individualized standard IQ testing; (ii) deficits in adaptive functioning (e.g., communication and social skills); (iii) and the onset of these deficits during childhood. The severity of the intellectual disability is classified as either mild, moderate, severe, or profound (American Psychiatric Association, 2013). The prevalence of adults with intellectual disabilities in the UK is estimated to be approximately 2.16% (Office for National Statistics, 2019; Public Health England, 2016).

Autism is another developmental disability grouped as a pervasive developmental disorder within DSM-5. Autistic individuals have varying degrees of strengths and challenges in relation to social communication, social interaction, and social imagination (Wing & Gould, 1979). The prevalence of autism varies across the world (Chiarotti & Venerosi, 2020). Recent research conducted in Europe suggested that in Poland 5.29/1000 of children aged 0-16 years were autistic (Skonieczna-Żydecka et al., 2017). Although, more recently a higher estimated autism prevalence in Spain of 11.8/1000 children aged 6-10 years in 2017 was reported (Pérez-Crespo et al., 2019).

This thesis focuses on both autistic adults and adults with intellectual disabilities due to the difficulties differentiating autism and ID previously reported within the literature and

because there are several commonalities between the two conditions, such as the presence of social communication difficulties (Thurm et al., 2019). In addition, prevalence data have suggested high rates of comorbidity, with between 30-40% of autistic adults reported to also have ID (McPartland et al., 2016). Furthermore, preliminary research has suggested autistic adults are more likely to be involved in firesetting, in comparison to other types of offending behaviour (Mourisden et al., 2008). When reviewing the evidence of autistic adults who have engaged in firesetting, Allely (2019) suggested a potential association between autistic adults who set fires and those who have a circumscribed interest in fire (Allely, 2019). In comparison to adults with ID, autistic adults who engage in offending behaviour are a relatively under-researched population. This highlights the importance of including autistic adults and adults with ID in the current research.

Prevalence of Offending and IDD

The prevalence of offending by adults with IDD has been predominantly estimated using the rates of offending in a known population of adults with IDD, or the rates of IDD in a known offending population (Tort et al. 2016; Heeramun et al., 2017). Historically, a higher prevalence of offending among adults with IDD, compared to the general population has been reported (e.g., Hodgins, 1992). More recently, Yu et al. (2021) compared the prevalence of offending among autistic young adults aged 17-23 years (n = 606), individuals with ID (n = 1271), and a population comparison group (n = 2973) in the USA. Findings suggested 3.3% of autistic adults, 7% of adults with ID, and 7.5% of the control group were involved in the justice system as adults. However, others argue that very few adults with IDD encounter the criminal justice system as either suspects or offenders and findings are influenced by recruitment strategies and the definition of offending behaviour (Chester, 2018).

McBrien et al. (2003) investigated offending behaviour among service users in the UK and reported that 26% had committed offences or displayed “risky” behaviours, and 11% had been convicted. Using a data linkage technique, Nixon et al. (2017) reported that 19.2%

of adults with ID registered with disability services in Australia had a criminal history. Reviews of the relevant literature have suggested a prevalence of ID in offender populations of between 7 and 10% worldwide (Fogden et al., 2016; Hellenbach et al., 2017). The No One Knows programme of research suggested that as many as 20-30% of offenders were identified in the literature as having a learning difficulty or ID that interfered with their ability to cope within the criminal justice system (Loucks, 2007). Research has suggested that prevalence estimates vary depending on samples recruited and that adults with IDD may be overrepresented in some parts of the criminal justice system, but not others.

Prevalence data on the presence of IDD within prison services varies widely. O'Neill et al. (2016) recruited a sample of 1,109 remand prisoners in Ireland and reported the prevalence of IDD as similar to that found in the general population (1.3%). In comparison, Billstedt et al. (2017) who explored the characteristics of 270 young violent offenders in Sweden reported a prevalence of IDD as high as 11%. When more robust assessments have been completed (inclusive of full-scale IQ tests and assessment of adaptive behaviour) findings have suggested adults with IDD may not be over-represented within prison services in the UK, US, or Australia (Herrington 2009; Holland & Persson 2011; MacEachron, 1979; Murphy et al. 1995). Hayes et al. (2007) assessed 140 prisoners using the WAIS-III (Wechsler, 1999) and Vineland Adaptive Behavior Scales Interview Edition (VABS, Sparrow et al., 1984) and reported that 2.9% of the sample in an adult UK prison had standard scores below 70, which was indicative of having ID. Therefore, findings are mixed but may suggest adults with IDD are not overrepresented within UK prison services, although better-designed research is required (Billstedt et al., 2017; Fazio et al., 2012; O'Neill et al., 2016; Robinson et al., 2012; Young et al., 2018).

A proportion of adults with IDD who engage in offending behaviour may have a comorbid psychiatric diagnosis or lack mental capacity. Due to these challenges, adults who engage in criminal behaviour may be referred to forensic psychiatric services, which, in England provide care and treatment for mentally disordered offenders in high, medium, and low secure inpatient facilities, as well as in the community (Duke et al. 2018). In medium

secure psychiatric inpatient services, 13.4% of service-users in England and 19% of service-users in Canada are reported to have ID (Kasmi et al., 2020; Woodbury-Smith et al., 2018). Although researchers may have oversampled at specialised units. Exploring the prevalence of ID in populations of adults identified for pre-trial forensic psychiatric examination, researchers found a prevalence of 6.4% in Sweden and 1.4% in Norway (Edberg et al., 2020; Helverschou et al., 2015).

Other settings in which research has been conducted have included police stations, courts, probation services, and community services. Researchers examining prevalence within police custody in London have found that between 4-6.7% of adults may have ID (Samele et al., 2021; Young et al., 2013). Marshall-Tate et al. (2020) reviewed the evidence to determine the prevalence of defendants with ID in court services and suggested a prevalence of up to 10%. However, only two studies conducted in the USA and Australia were identified during their searches of the literature and neither study included autistic adults (Burke et al., 2012; Vanny et al., 2009). Mason and Murphy (2002) are the only known researchers to explore the prevalence of ID in probation services. Having screened 90 adults known to probation services in England authors reported a prevalence of 7%. Despite research focused on adults with ID in contact with the police, court, and probation services beginning to emerge, findings are limited by small ungeneralisable samples. The exclusion of autistic adults and the over-reliance on screening measures, rather than robust assessments to identify adults with ID also limit the reliability of findings. Nevertheless, evidence has consistently suggested that adults with ID encounter different parts of the criminal justice system as offenders.

Estimates of prevalence for the number of adults with IDD who engage in offending behaviour are derived from biased samples, recruited predominantly from secure psychiatric services and prisons. Historically, the definition and eligibility criteria for adults with IDD have varied and have impacted the outcomes of research. For example, recruiting only adults with ID, rather than autistic adults will bias prevalence data, as will excluding those with a borderline intellectual disability or comorbid diagnoses. Evidence has suggested that those

with a borderline level of intellectual functioning may be most at risk, while those with a diagnosis of more severe ID may be at less risk, and as the degree of ID increases, the risk of offending decreases (Murphy & Mason, 1999). Nevertheless, current prevalence estimates have largely excluded adults with IDD in the community who might have been unknown to services and were therefore potentially biased towards higher-risk individuals who were already known to psychiatric services or the criminal justice system. In some countries, including England and Wales, provisions have been implemented to encourage the diversion of adults with IDD away from the criminal justice system (e.g., Liaison and Diversion Services; Bradley, 2009). In England and Wales, where adults with IDD lack *mens rea* (i.e., the intent to commit an offence) their behaviour will not result in a conviction.

Adults with IDD are often supported by others (i.e., family carers) and several gatekeeps (e.g., support workers, service managers, family carers) who contribute towards determining whether someone with IDD is drawn to the attention of the police. Then, the police and Crown Prosecution Service determine whether to arrest and prosecute someone. Lyall et al. (1995) concluded that staff in IDD services are reluctant to report problem behaviours to the police as they find it difficult to recognize what constitutes an offence and judge what action to take, even when the incidents are serious. Findings are therefore unlikely to account for the reluctance of adults to report offences (Lyall & Kelly, 2007), and offences not having resulted in prosecution for a variety of reasons (e.g., fitness to plead or a lack of capacity; Loucks, 2007; Xenitidis et al., 1999). Therefore, prevalence data varies widely depending on a variety of factors, which warrant consideration when interpreting research findings.

Offence Type

Historically, researchers have suggested that adults with IDD are more likely to engage in specific types of offending behaviour, including firesetting, violence, and sexual offending. Rose et al. (2008) recruited 47 adults with ID in the UK who had been in contact with the criminal justice system and found that the most common types of offending

behaviours were physical violence and assault (21%), sexual assault against adults (26%), and sexual assault against children (23%). The most common violent offences perpetrated by autistic adults were sexual assault (Murrie et al., 2002; Woodbury-Smith et al., 2006) and physical assault (Schwartz-Watts, 2005; Woodbury-Smith et al., 2006), with physical assault being the most common act. However, violent offending by autistic adults varied widely across studies with a prevalence of between 1.5% to 67% reported (Långström et al., 2009; Scragg & Shah, 1994; Søndenaa et al., 2014).

Historical research has suggested the prevalence of sexual offending by adults with ID is higher, compared to non-ID offenders (Klimecki et al., 1994; Lund, 1990; Murphy et al., 1995). These findings are supported by Simpson and Hogg (2001) who conducted a review of the literature and concluded the prevalence of both arson and sexual offences may be higher relative to other types of offending for adults with ID. More robust research that has compared a matched sample of autistic and non-autistic adults has suggested there are only a few differences in the types of offences committed across these populations. Arson and criminal damage appeared more common for autistic adults compared to non-autistic adults, whereas driving and drug offences were less common (e.g., Mouridsen et al, 2008; Woodbury-Smith et al, 2006).

Prevalence of Firesetting in IDD

There has been no known published research to date examining the prevalence of firesetting amongst adults with IDD in the UK using a nationally representative sample. Given the lack of data available from existing research, UK government statistics drawn from prison, probation, and inpatient services in England and Wales may provide some insight into the scale of the problem. In 2019, there were 4,899 adults detained under criminal sections of the Mental Health Act (2007) in England and Wales. The most recent statistics report that in December 2020, 525 had a conviction for Arson (n = 382 males, 143 females) (Ministry of Justice, 2020; NHS Digital, 2021). A proportion of these individuals would have

IDD, as firesetting amongst this group is frequently reported within the literature (e.g., Lees-Warley & Rose, 2015; Simpson & Hogg, 2001).

When reviewing the research evidence, it is apparent that the prevalence of firesetting among adults with IDD varies widely and is further dependent on study design and influenced by methodological limitations (e.g., lack of matched comparison samples, varying sample sizes). The identification of adults with IDD in the criminal justice system is reliant on accurate identification, reliable, and valid assessment. However, authors have frequently neglected to confirm the diagnosis using standardised assessments (e.g., Almeida et al., 2010). As previously reported, not all acts of intentional firesetting result in a conviction for arson. Official statistics do not include offenders who have a previous conviction for arson or those offenders who have a history of un-convicted firesetting (e.g., undetected fires). As with other types of offending behaviour, the prosecution is dependent on an assessment of fitness to be interviewed by the police, witness reliability, and fitness to plead and stand trial.

More robust studies suggest adults with ID who set fires may be over-represented in secure hospitals (e.g., Alexander et al., 2011; Chester et al., 2018). However, researchers have not yet explored the prevalence of IDD and firesetting amongst a representative population sample. Rather, current estimates are inherently biased as authors have taken the opportunity to use incomparable samples from different populations (e.g., prison, community, or psychiatric inpatient services) who have had an offending history and have been known to services. Future prevalence studies are therefore needed to accurately assess the true scale of the problem.

Summary and Conclusions

Prevalence data is important as it informs practice and policy, ultimately impacting the resources and interventions available to individuals with IDD who encounter the criminal justice system. A lack of clarity concerning the definition of offending and changing definitions of IDD over time has led to both an under and overestimation of offending behaviour. As seen historically, an overestimation of offending behaviour can lead to the

stigmatisation of adults with IDD, however, an underestimation can prevent resources from being allocated effectively.

Deliberate firesetting continues to be a problem with devastating financial and human consequences. Although difficult to accurately estimate prevalence, evidence has consistently suggested that a proportion of deliberate fires set in the UK are done so by adults with IDD and that these adults have placed demands on inpatient, prison, and community services. However, figures are unreliable and may have underestimated the scale of the problem. Therefore, a greater understanding of firesetting behaviour within this group is required before recommendations relating to the assessment and treatment of firesetting are formulated. The following two chapters will review the characteristics of adults who set fires, as well as the existing theoretical efforts in the field.

Chapter 2

Characteristics and Treatment Needs of Adults Who Set Fires

Introduction

As highlighted in Chapter 1, adults with IDD do set fires, and this behaviour has devasting consequences both for victims and for wider society. In Chapter 2, an overview of the existing literature pertaining to the characteristics and treatment needs of all adults who set fires is presented, including the sociodemographic features and developmental experiences, biological features, psychological and personality traits, fire related factors, offending history, offence specific characteristics, and psychopathology.

Sociodemographic Features and Developmental Experiences

Research into the sociodemographic features of adults who set fires has suggested they are typically Caucasian, poorly educated, unskilled, single males of low economic status and younger than other types of offenders (Barrowcliffe & Gannon, 2015; Barnett et al., 1997; Blanco et al., 2010; Gannon & Barrowcliffe, 2012; Gannon & Pina, 2010; Lewis & Yarnell, 1951; Muller, 2008; Soothill & Pope, 1973; Soothill et al., 2004; Vaughn et al., 2010). They are more likely to come from large families, single-parent households, characterised by unstable or poor parenting styles (i.e., absent parents, abusive experiences, conflictual family environment) compared to population comparison groups (Anwar et al., 2011) and other offender comparison groups (Bradford, 1982; O'Sullivan & Kelleher, 1987). When compared to non-firesetting offenders, apprehended adults who set fires have typically originated from broken homes (Hurley & Monahan, 1969), and are more likely to have been taken into care at a young age (Jackson et al., 1987). Other background factors have included having a family history of antisocial behaviour (Vaughn et al., 2010), experiences of violence, neglect, abuse, and trauma (Barnoux et al., 2015; Bell et al., 2018a; Tyler et al., 2014). Abuse reported has included physical abuse (Roe-Sepowitz & Hickle,

2011; Root et al., 2008) and sexual abuse (Dickens et al., 2007; Jayaraman & Frazer, 2006; Noblett & Nelson, 2001; Root et al., 2008; Stewart, 1993).

Biological Features

This will be considered in more detail in Chapter 3 (p. 34). Briefly, biological features that have been associated with firesetting amongst adults who set fires, have included a central monoamine (particularly serotonin) deficit and glucose metabolism abnormalities (Roy et al., 1986; Virkkunen, 1984; Virkkunen et al., 1989), frontal lobe dysfunction (Bosshart & Capek, 2011; Calev, 1995; Friedman & Clayton, 1996; Kanehisa et al., 2012), electroencephalographic abnormalities (Meinhard et al., 1988), epilepsy (Carpenter & King, 1989; Mende, 1960), and Klinefelter's or XYY syndrome (Eytan et al., 2002; Stochholm et al., 2012). However, findings are grounded in case study data and there are difficulties with generalising this evidence to the wider population. Consequently, findings should be interpreted with caution as there have been no studies to date to suggest there is a primary biological cause that explains firesetting behaviours.

Psychological and Personality Traits

Several psychological and personality traits have been associated with firesetting behaviour, including an external locus of control, social competency problems (Gannon et al., 2013), emotional or self-regulation problems (Craig et al., 2013; Gannon et al., 2013), a lack of assertiveness skills, and limited communication skills (Jackson et al., 1987; Rice & Chaplin, 1979; Rice & Harris, 2008; Rix, 1994; Stewart, 1993). Maladaptive coping strategies, aggression, impulsivity (Long et al., 2015), a low threshold for frustration tolerance and loneliness are also reported in the literature as risk factors for firesetting among adults (e.g., Barnoux et al., 2015; Gannon & Pina, 2010; Gannon et al., 2013; Inciardi, 1970; Rice & Chaplin, 1979). Furthermore, adults who set fires have been found to have dysfunctional attachment styles, difficulties forming and maintaining healthy relationships, and low self-esteem (Barnoux et al., 2015; Bell et al., 2018a; Duggan & Shine,

2001; Gannon & Pina, 2010; Noblett & Nelson, 2001; Saunders & Awad, 1991). This is perhaps unsurprising given the links between childhood adversities, poor developmental experiences, and difficulties with interpersonal relationships during adulthood (Bowlby, 2005; Rothbard, & Shaver, 1994; Waters et al., 2000).

Fire Related Factors

Early exposure to fire has been associated with deliberate firesetting behaviour during adulthood (Vreeland & Levin, 1980; Wolford, 1972). Exposure to fire has included having a history of firesetting within the family and/or social environment (e.g., Barrowcliffe & Gannon, 2015; Harris & Rice, 1991), or a father whose occupation involved significant exposure to fire (Macht & Mack, 1968). Early positive or negative experiences of fire during childhood may impact the presence of psychological vulnerabilities and risk factors for firesetting behaviour during adulthood (Barnoux et al., 2015; Tyler et al., 2014). Fire related factors havehave included the normalisation of the criminal use of fire, an interest in serious fires or everyday fires, positive or negative affect about fire, or reduced fire safety awareness (Gannon et al., 2013). Cognitive and emotional responses to fire are more common amongst those who set fires, compared to other types of offending (Gannon et al., 2013). Offence supportive norms and schemas may develop and are common, which predispose adults to engage in firesetting behaviour (Barrowcliffe & Gannon, 2016; Barrowcliffe et al., 2019; Gannon et al., 2013; Tyler et al., 2014).

Offending History

When reviewing offence-specific characteristics for adults without IDD who set fires, a criminally versatile offending history has been common, with evidence having suggested that behavioural problems start in childhood (e.g., Doley et al., 2011; Ducat et al., 2013; Gannon et al., 2013; Hagenauw et al., 2014; Hill et al., 1982; O' Sullivan & Kelleher, 1987; Ritchie & Huff, 1999; Sapsford et al., 1978; Soothill et al., 2004). When researchers have compared offenders convicted of crimes related to property damage, violence and

firesetting, findings have suggested that those who set fires are most comparable to property offenders because their offending history has been more versatile and has not always been characterized by interpersonal violence (Gannon & Pina, 2010).

Offence Specific Characteristics

Offence specific characteristics have included motivations for setting a fire, triggers for firesetting or the target of the firesetting. Motivations for firesetting have included revenge (Gannon et al., 2012; Koson & Dvoskin, 1982; Lewis & Yarnell, 1951; O'Sullivan & Kelleher, 1987; Rix, 1994), peer influence (Barnoux et al., 2015; Molnar et al., 1984), vandalism, excitement (Gannon & Pina, 2010; Icove & Estepp, 1987; Inciardi, 1970), to conceal another crime (Barnoux et al., 2015; Dennet, 1980), self-protection (Tyler et al., 2014), political motivation (e.g., terrorist attacks, riots; Prins, 1994), financial gain (Dennett, 1980; Prins, 1994; Nanayakkara et al., 2020) and self-injury or suicide (Barnoux et al., 2015; Gannon et al., 2012; Jayaraman & Frazer, 2006; Noblett & Nelson, 2001). Self-protection was also highlighted as a motive for firesetting among adults with a mental disorder (Tyler et al., 2014). Further, males are more likely than females to set fires for financial profit and as an act of revenge within the context of intimate partner violence (Nanayakkara et al., 2020).

Psychopathology

Mental illness appears common amongst adults who set fires (Barnoux et al., 2015; Bell et al., 2018a; Jayaraman & Frazer, 2006; Räsänen et al., 1995; Tyler & Gannon, 2012; Tyler et al., 2014). Common diagnoses associated with adults who set fires are personality disorder (i.e., anti-social and borderline personality disorders; Blanco et al., 2010; Dickens & Sugarman, 2012; Ducat et al., 2013; Lindberg et al., 2005; MacKay et al., 2006; Martin et al., 2004), schizophrenia (Anwar et al., 2011; Dickens & Doyle, 2016; Ritchie & Huff, 1999), substance dependence (Ducat et al., 2013; Enayati et al., 2008), affective disorders (Ducat et al., 2013; Tyler et al., 2014), and anxiety disorders (Barnoux et al., 2015).

Large-scale data-linkage studies undertaken in Sweden (Anwar et al., 2011) and Australia (Ducat et al., 2013) have found psychotic disorder to be present in 8.1% and 6.9% of arson offenders, respectively. A UK study comparing the psychopathology of 112 adult male incarcerated adults with a history of firesetting to 113 male prison controls found borderline personality traits to be the strongest discriminator between the two groups (Ó Ciardha et al., 2015). Evidence suggested that personality disorder is particularly prevalent among adults with a mental health diagnosis who have set a fire (Bradford, 1982; Hagenauw et al., 2014; Räsänen et al., 1995). Furthermore, when compared to other types of offending, adult males with a mental health diagnosis who set fires were characterised by greater hostility (Hagenauw et al., 2014; Rice & Harris, 1991), alcohol use and difficulties with social skills (Enayati et al., 2008; Labree et al., 2010; Räsänen et al., 1995).

Evidence has also suggested that lower general intellectual functioning is common among adults who set fires (Devapriam et al., 2007; Hall et al., 2005; Murphy & Clare, 1996; Lees-Warley & Rose, 2015; Simpson & Hogg, 2001). Prevalence studies have suggested that around 1 to 22% of adults who set fires may have lower general intellectual functioning or ID depending upon the population sampled (i.e., inpatient, community, prison samples; Alexander et al., 2011; Devapriam et al., 2007; Hall et al., 2005; Murphy & Clare, 1996; Lees-Warley & Rose, 2015; Simpson & Hogg, 2001).

Furthermore, Devapriam et al. (2007) investigated the prevalence, characteristics, and predisposing factors for arson in adults with ID in contact with psychiatric services in Leicestershire in England. The authors reported significant comorbidity among those who had committed arson, with high rates of major mental illness and personality disorder. These findings were supported by Alexander et al. (2015) who reported that a diagnosis of personality disorder was significantly more common in the firesetting group compared to adults with ID engaged in other types of offending behaviour.

Summary and Conclusions

The evidence pertaining to the characteristics and treatment needs of those who set fires has developed over the years. Findings have suggested that although adults who set fires share some similar characteristics (e.g., low socioeconomic status) to other types of offenders, they also present with prominent characteristics and treatment needs that warrant specialist assessment and intervention (e.g., fire-related factors). However, previous research has regarded adults who set fires as one homogenous group and has failed to differentiate between different types of individuals, including those with IDD. The evidence on other types of offending behaviour (e.g., sexual offending; Gleaser & Deane, 1999) has suggested that although adults with IDD share some similar characteristics and treatment needs to non-IDD offenders, they also present with other factors which warrant further exploration. Other factors, more prominent amongst adults with IDD may impact their life (e.g., their developmental experiences, background history) and ultimately their motivations for offending. For example, slower information processing speed, concrete thinking, language difficulties, communication problems, and circumscribed interests, amongst other factors may relate to their offending behaviour (Allely, 2019; Craig & Hutchinson, 2005; Keeling et al., 2007).

Arguably, the evidence base pertaining to adults with IDD who set fires should be given further attention to exploring the similarities and differences between those with and without IDD who set fires. To date, there has been no comprehensive summary of the evidence base pertaining to adults with IDD who set fires and the quality of the evidence has not been evaluated. A review of the literature would seek to improve our understanding of this sub-group of firesetters and inform our understanding of their characteristics and treatment needs. In addition, gaps in our understanding would be highlighted, creating opportunities for further research to be conducted. Nevertheless, the characteristics of adults who set fires, as outlined in the current chapter, have informed the development of theory. Current theoretical conceptualisations of adult firesetting will be presented in Chapter 3 and the validity of current theories, when applied to adults with IDD, will be discussed.

Chapter 3

Theories of firesetting

Introduction

The generation of theory is the basis of all psychological research, as it provides a framework for hypothesis generation, eventually leading to new knowledge, which is used to inform clinical interventions. In a review of the sexual offending literature, Ward and Hudson (1998) distinguished between three levels of theory: level one multifactorial theory, level two-single factor theory, and level three-micro-level theory. Multifactorial theories provide a detailed explanation of how several factors might interact and lead to offending. Single-factor theories describe individual reasons considered important when explaining offending behaviour. Micro-level theories describe an offence process as it unfolds over time, specifying the cognitive, behavioural, motivational, and social factors associated with offending behaviour (Ward & Hudson, 1998). Theories are constructed and used by researchers to explain or interpret a particular phenomenon.

Empirical research is conducted to either prove or disprove a theory, leading to further developments in the field and a greater understanding of a phenomena. In 2007, Jones and Mehr (2007) reiterated the significance of the scientist-practitioner model and emphasised the value of conducting research that applies to clinical practice. The generation of theory is important as it can guide our understanding of a phenomena, which may then drive subsequent developments including assessment and treatment. Prior to more complex theories being developed, typological classifications, although not included in Ward & Hudson's (1998) framework, informed the development of theory at each level, and provided a guide for intervention strategies.

This chapter will critically review current typological classifications, as well as more complex theories of firesetting behaviour. There are currently three level one multifactorial theories, three level two single factor theories and two level three micro-level theories. Multifactorial theories include the Functional Analysis Theory (Jackson et al., 1987),

Dynamic Behaviour Theory (Fineman, 1980; 1995), and the Multi-Trajectory Theory of Adult Firesetting (M-TTAF; Gannon et al., 2012). Single-factor theories include the Psycho-Analytical Theory (Freud, 1932), Biological Theory (Virkkunen, 1984; Virkkunen et al., 1995; 1987), and Social Learning Theory (Bandura, 1976; Vreeland & Levin, 1980). Micro-level theories include the Firesetting Offence Chain for Mentally Disordered Offenders (FOC-MD; Tyler et al., 2014), and the Descriptive Model of Adult Male Firesetting (DMAF; Barnoux et al., 2015). A review of existing typological classifications and theories of deliberate firesetting will highlight two key deficits: (i) existing level one and level two theories do not adequately explain the factors contributing to an act of firesetting for adults with IDD, thus limiting their ability to inform evidence-based practice with this population; and (ii) there are currently no level three theories explaining how the offence process unfolds over time for adults with IDD who have a history of firesetting behaviour.

Typological Classifications of Adults who Set Fires

Adults who set fires are predominantly treated as one heterogeneous group within the literature, resulting in researchers attempting to generate more manageable homogenous subtypes. These subtypes have been developed based on perceived motivational factors for starting a fire and offence characteristics. Consequently, many different types of adults who set fires have been proposed. Nevertheless, no typological classification to date has explored whether adults with IDD have distinctive offence characteristics or motivations for starting a fire. Instead, IDD has been independently categorised as a motive sub-type or subsumed under the wider category of mental health disorders (e.g., Bradford, 1982; Inciardi, 1970; Lindberg et al., 2005).

Despite previous research that has suggested adults with IDD set fires (Allely, 2019; Lees-Warley & Rose, 2015; Simpson & Hogg, 2001), only a minority of researchers have recruited this population within their overall sample when developing typological classifications. Having conducted a review of the literature, Table 3.1 presents an overview of the known typological classifications that have been developed based on samples of

firesetters that have included adults with IDD within their sample. However, none of the proposed typologies, except Murphy and Clare (1996), have been exclusively developed based on evidence from adults with IDD. Of the studies that have included a sub-sample of adults with IDD, poor research methodologies (e.g., lack of formal assessment tools, limited sample size, biased recruitment strategies) have resulted in findings that lack validity, reliability, and generalisability. However, despite the methodological limitations, typological classifications have provided researchers and clinicians with initial, albeit limited, insight into the motives and offence characteristics of this population.

Table 3.1

Typological classifications developed with (a sub-sample) of adults with IDD

Author (date)	Typological classification	Sample
Bourget & Bradford (1989)	Accidental, Psychotic, Revenge, Sexual Gratification, Attention Seeking, Suicidal Attempt, Professional (compensation), Children's, Unknown	15 females charged with Arson & referred to the dept. of forensic psychiatry at the Royal Ottawa Hospital for pre-trial examination (n = 1 diagnosed with mild mental retardation). Comparison group (n = 77 males)
Bradford (1982)	Accidental, Psychotic, Revenge, Sexual Gratification, Attention Seeking/Cry for Help, Professional, Children's, Mixed group	26 males & 8 females charged with Arson & referred to the dept. of forensic psychiatry at the Royal Ottawa Hospital for pre-trial examination (n = 5 diagnosed with mental retardation). Comparison group (n = 50 charged with offences other than Arson).
Geller & Bertsch (1985)	Attention Seeking/Cry for Help	111 males & 80 females from Northampton State Hospital. -50 had set a fire (n = 3 diagnosed with mental retardation).
Hill et al. (1982)	No obvious motivation, Revenge Jealousy, Pleasure/excitement, Sexual	38 males were assessed at the Forensic Inpatient Service of the Clarke Institute of Psychiatry (n = 7 males with mental retardation).
Inciardi (1970)	Revenge, Excitement, Institutionalized, Insurance-Claim, Vandalism, Crime-Concealment	133 males & 5 females released on parole from prison (n = 26 with FSIQ 70 and below).
Koson & Dvoskin (1982)	Revenge (authority/non-authority figure), Instrumental, Intrinsic	36 males were referred for pre-trial examination to Bridgewater State Hospital, a maximum-security hospital (n = 7 with mental retardation)
Lewis & Yarnell (1951)	Unintentional, Delusions, Erotic Pleasure, Revenge, Child	2000 reports obtained from the National Board of Underwriters, US (48% diagnosed morons, 22% were of borderline/dull normal intelligence).

Lindberg et al. (2005)	Mentally Retarded, Psychotic, Personality Disorders, Pyromania	90 males were referred to Helsinki University Hospital Department of Forensic Psychiatry (n = 16 with mental retardation/IQ below 70).
Murphy & Clare (1996)	Anger, Feeling Not Listened To, Sad and/or Bored, Anxious/Tense, Auditory Hallucinations	7 males & 3 females from a Regional Health Authority Service for Mild Learning Disability & major behavioural disorders Control group (n = 10 users of two local day centres for adults with mild learning disabilities).
O'Sullivan & Kelleher (1987)	Revenge, Manipulative, Tension Reduction, Sexual Gratification, Delusional, Suicidal, Gain, Motiveless	41 males & 13 females from 3 psychiatric hospitals & 1 prison (n = 4 males with mental handicap)
Richie & Huff (1999)	Revenge, Crime Concealment, Suicide, Vandalism, Excitement, Profit, Mischief, Thrill, Murder, Fraud, Attention, Delusional, Other	234 males & 49 females from a psychiatric hospital & prisons (n = 1 with Pervasive Developmental Disorder)
Rix (1994)	Revenge, Excitement, Vandalism, Cry for Help/Attention, Re-Housing, Suicide, Carelessness, Psychotic, Financial, Cover-up, Other, Manipulative, Heroism, Proxy, Antidepressant, Political	129 males & 24 females referred to the author for pre-trial psychiatric reports and were subsequently convicted of arson from community & prison (n = 16 with mental handicap)

Existing typological classifications of adults who set fires have suggested the motives of adults with ID are related to revenge, recognition, excitement, mental illness, anti-social behaviour, and protest (Bradford, 1982; Inciardi, 1970; Koson & Dvoskin, 1982; Murphy & Clare, 1996). In smaller studies, self-gratification and murder have been identified as motives for firesetting amongst this population (Hill et al., 1982; Lewis & Yarnell, 1951; Richie & Huff, 1999). However, an overlap between classifications is frequently observed, with authors of some typological classifications having reported ID as a motive in and of itself (e.g., Prins, 1994) and others framing ID as an explanatory factor leading to firesetting (e.g., Kocsis, 2002; Rix, 1994); neither of which offer insight into the motivations of this population.

Lastly, crime scene classification techniques have also been used to report typologies of firesetting by categorizing adults who set fires into several groups based on the features of the fire, characteristics, and motivations (e.g., Canter & Fritzon, 1998; Douglas et al., 1992; Douglas et al., 2013; Kocsis & Cooksey, 2002). However, models have not yet been developed with cases of arson that were perpetrated by adults with IDD. Consequently, the offence characteristics of adults with IDD who set fires have not yet been identified.

More broadly, the typological classifications of adults who set fires do not consider the psychological implications for proposed categories, they fail to outline key psychological traits, risk factors, clinical features, or make treatment suggestions. Furthermore, typology classifications that have been developed to date have several conceptual and methodological weaknesses, restricting their clinical utility and contribution to higher-order theories in deliberate firesetting. For example, data collection strategies rely predominantly on information obtained from retrospective service user records (e.g., Bourget & Bradford, 1989; Bradford, 1982; Geller & Bertsch, 1985; Inciardi, 1970; Richie & Huff, 1999; Rix, 1994), therefore reducing the validity of research findings. Many studies fail to report inter-rater reliability figures or statistically validate classifications, making it difficult to compare findings (David & Bennett, 2016; Gannon & Pina, 2010). Furthermore, most classification systems have categorised adults who set fires according to motive. These typologies have been criticized for not accommodating more than one motive and for conflating motives with

behaviour and/or psychiatric conditions (Geller, 1992). Categorising individuals according to one overriding motive assumes potential firesetting subtypes as driven by a single factor rather than a more complex and multifaceted approach (Prins, 1994). In addition, sample sizes are small and largely ungeneralizable (O'Sullivan & Kelleher, 1987). Consequently, researchers frequently recruit adults who set fires as one group, ignoring potential differences between populations. Existing typologies are therefore inadequate when explaining the firesetting behaviour of adults with IDD.

Multi-Factorial Theories of Firesetting

There are three known multi-factorial theories of deliberate firesetting: (i) Functional Analysis Theory (Jackson et al., 1987), (ii) Dynamic-Behaviour Theory (Fineman, 1980, 1995), and (iii) the Multi-Trajectory Theory of Adult Firesetting (M-TTAF; Gannon et al., 2012).

Functional Analysis Theory (Jackson et al., 1987)

Although described as a theory, Jackson et al. (1987) applied the functional analysis framework (Sturmey, 2008) to firesetting behaviour. The authors identified the interaction between several factors that may ultimately lead to an act of deliberate firesetting. Several antecedents of firesetting were identified and the variables that serve to maintain and reinforce the behaviour were considered. Antecedents of firesetting behaviour, identified by Jackson et al. (1987) were: psychosocial disadvantage (e.g., adverse developmental experiences, psychological vulnerabilities), life dissatisfaction and self-loathing (e.g., depression, self-esteem problems), social incompetency (e.g., poor problem-solving skills), fire experiences (e.g., use of fire in immediate environment), and firesetting triggers (e.g., internal, and external emotionally significant events). Functional analysis is a framework grounded in learning theory (Skinner, 1948; 1950; Thorndike, 1898; Watson, 1913), including Social Learning Theory (Bandura, 1976). As with other learnt behaviour, Jackson et al. (1987) argued that firesetting behaviour is maintained due to positive and negative

reinforcement associated with the consequences of having set a fire (i.e., operant conditioning). Positive reinforcement includes external reinforcement (e.g., financial gain), internal cognitive reinforcement (e.g., recognition from peers), or sensory reinforcement (e.g., excitement from hearing sirens). Authors suggested that children who have social difficulties set a fire as it is positively reinforced and provides them with power, influence, and acceptance from peers. Negative reinforcement (e.g., punishment or rejection) results in an increased sense of personal inadequacy leading to further acts of antisocial firesetting. It has been suggested that adults use fire as a weapon as it provides a non-confrontational form of communication (Harris & Rice, 1984; Jackson et al., 1987; Smith & Short, 1995), as well as a way to obtain some degree of control over their environment, also known as "The Only Viable Option Theory" (Jackson, 1994, p. 107). Jackson (1994) proposed that firesetting is a way for individuals to resolve problems or manage difficult circumstances that are perceived to be impossible to solve via alternative methods.

The functional analysis approach to the assessment of firesetters demonstrates the significance of several emotional, cognitive, and situational factors and how these may predispose, precipitate, and perpetuate firesetting behaviour. The functional analysis framework is well established in the approach to challenging behaviour and has therefore appealed to clinicians working with adults with IDD who present with a history of firesetting (Emerson & Einfield, 2011; Joyce, 2006; Matson & Minshawi, 2007). Long et al. (2013) adopted Jackson et al's (1987) functional analysis approach to understanding firesetting behaviour as the conceptual basis for developing the St Andrew's Fire and Arson Risk Instrument (SAFARI), a semi-structured interview assessment piloted with a sample of 15 women with a diagnosed ID in secure services. In addition to having ID, participants were diagnosed with emotional unstable personality disorder (n = 9), schizophrenia/ schizoaffective disorder (n = 3) and bipolar affective disorder/depression (n = 3). Satisfactory content and convergent validity of the SAFARI were reported; however, little is known about whether the factors are relevant to autistic adults. Similarly, Murphy and Clare (1996) developed a 32-item Fire-Setting Assessment Schedule (FSAS). Authors of the FSAS asked

seven males and three females with ID to recall their cognitions and feelings immediately before and after setting fires. The results of the small study found that the most frequently endorsed FSAS antecedent items were anger, followed by being ignored and then feelings of depression. Taylor et al. (2002) similarly found that anger, being ignored, and depression were the most frequently endorsed items on the FSAS in terms of antecedents to and consequences of firesetting by adults with ID. Taylor et al. (2006), in another small study of women with ID, also found that anger and depression were the most frequently endorsed items before they set fires. In addition, Tostevin & Shaikh (2015) developed and evaluated a staff training package on firesetting and adults with ID using the functional analysis framework. Self-reported outcome measures suggested the training increased staff confidence in their ability to formulate an individual who had engaged in firesetting using functional analysis.

Jackson et al. (1987) developed a model of firesetting that was informed by learning theory using functional analysis to provide a detailed account of setting events, discriminative stimuli, and learning via operant conditioning and vicarious learning. However, adults who set fires were treated as one homogeneous group, whereby the authors did not recognise the differences between individuals. Jackson and colleagues' model was developed based on the authors' clinical experiences with mentally disordered offenders, and therefore lacks empirical adequacy when generalised to adults with IDD, who might have prominent antecedents or reinforcements for their firesetting behaviour not currently identified in the literature. Further, several factors may interact differently for this population (i.e., background factors, triggers, and motivations for deliberate firesetting). Lastly, Jackson et al's model of firesetting lacks explanatory depth (i.e., detailed, and intricate explication of the intended phenomena; Hooker, 1987; Newton-Smith, 2002). Consequently, the impact of cognitive functioning or developmental disabilities is not considered in any detail.

Dynamic Behaviour Theory (Fineman, 1980; 1995)

Authors of the Dynamic Behaviour Theory proposed that firesetting behaviour occurs as a consequence of the interaction between three factors, referred to as dynamic, environmental, and the immediate environment that contribute towards an individual vulnerability to set a fire (Fineman, 1980, 1995). The dynamic factors are historical variables that predispose an individual to engage in maladaptive and antisocial acts (e.g., dysfunctional family background, peers, academic performance, personality, and health). Environmental factors are historical variables that have led an individual to think firesetting is an acceptable response to difficulties (e.g., experiencing a lack of parental supervision when playing with fire, observing significant others response to firesetting behaviour). Immediate environment refers to conditions that encourage firesetting behaviour (e.g., availability of matches or a lighter). By combining existing conceptualisations of firesetting (i.e., Cook et al., 1989), Fineman (1980, 1995) draws upon learning theory to explain the relationship between factors and describes firesetting using the following formula:

(FS) Firesetting = G1 + G2 + E

[E = C + CF + D1 + D2 + D3 + F1 + F2 + F3 + Rex + Rin]

The equation states firesetting is a consequence of (G1) historical factors predisposing individuals towards anti-social behaviour (i.e., social disadvantage, social ineffectiveness); (G2), historical environmental reinforcement contingencies facilitating firesetting (e.g., fire interest, fire-play, poor fire safety knowledge, poor parental responses to early firesetting); and (E), immediate environmental contingencies that encourage firesetting behaviour. (E) consists of several variables, which should be further explored to assess the individual's risk of firesetting: (C) experience of a crisis or trauma before the firesetting incident (i.e., death of a loved one, loss of employment, abusive experiences), (CF), characteristics of the firesetting episode (i.e., crime scene characteristics), (D1), cognitive distortions present before the firesetting episode, (D2), cognitive distortions occurring during

firesetting, (D3), cognitive distortions occurring immediately after firesetting, (F1), affect before firesetting, (F2), affect during firesetting, (F3), affect post firesetting, (Rex), external reinforcement contingencies (i.e., the concrete goal of firesetting such as economic gain), and (Rin), internal reinforcement contingencies (e.g., satisfaction, excitement). Fineman (1980, 1995) argued that during assessment and treatment of adults who have set a fire, each factor warrants exploration, as firesetting occurs because of the interaction and combination of several factors within the equation.

As part of the theoretical framework and to guide clinicians in the assessment of adults who set fires, Fineman (1995) developed the Firesetting Sequence Analysis Form (i.e., a checklist for the sequence of behaviours, thoughts, and feelings preceding and contributing to repeated firesetting), the Firesetting Motive Analysis Form (i.e., a checklist of eight firesetting subtypes to hypothesise the motive for the firesetting), and The Psycholegal Analysis Form (i.e., a checklist for the legal assessment of the individual and their risk of future fire-related dangerousness). As part of the Firesetting Motive Analysis Form, Fineman (1995) described eight subtypes, focusing on the psychological state or diagnostic category, the target of firesetting, and the function of the fire: (i) the Curiosity Type (i.e., young children who set fires as part of early child-play, possibly as a result of hyperactivity and/or attention deficits), (ii) the Accidental Type (i.e., fires set by accident); (iii) the Cry For Help Type (i.e., those who seek to draw attention to either an intra- or inter-personal dysfunction); (iv) the Anti-Social Type (i.e., generally anti-social, showing little empathy for others and consideration for the consequences of their actions); (v) the Severely Disturbed Type (i.e., those suffering from poor mental health); (vi) the Cognitively Impaired Type (i.e., those suffering from neurological and/or medical problems which impair their judgement and ability to control impulses); (vii) the Sociocultural Type (i.e., those whose firesetting is an expression of social protest); and, (viii) the Wildland Firesetter Type (i.e., those who set fires to land with the intent of the fire spreading to inhabited areas as a result of an underlying grievance).

Similar to Jackson et al. (1987) authors of the Dynamic Behaviour Theory of firesetting also draw upon learning theory, which is well established within the literature. Several key factors are identified which serve as antecedents, triggers, and discriminative stimuli (e.g., personality and individual characteristics, family and social characteristics, and immediate environmental influences; Barnoux et al, 2015; Duggan & Shine, 2001; Gannon et al., 2013; Hurley & Monahan, 1969; Tennent et al., 1971; Tyler et al, 2014). The importance of the interaction between factors for an individual is highlighted, and considerable explanatory depth to the theory is provided (Doley, 2009). Further, the theory holds significant clinical utility, providing a guiding framework with which to support the assessment and treatment of firesetting behaviour using the Firesetting Sequence Analysis Form (to inform clinicians of the offence sequence), the Firesetting Motive Analysis Form (to inform clinicians of the offender's goals), and The Psycholegal Analysis Form (to inform clinicians of the firesetters risk). In contrast to the work of Jackson et al. (1987), Fineman (1980, 1995) considered variables that increase an individual's risk of firesetting (e.g., experience of a crisis or trauma, characteristics of firesetting episode, cognitive distortions, affect, and internal or external reinforcement; Gannon & Pina, 2010). In addition, the dynamic behaviour theory highlighted the importance of offence supportive cognitions and explained firesetting as a complex interaction between factors. The model can be empirically tested, and the variables observed and measured.

However, the assessment framework relies heavily on the individual's ability to be aware of and to express the affective and cognitive factors associated with their firesetting behaviour (Doley, 2009). Evidence has suggested that adults with IDD, particularly autistic adults, may find identifying and expressing affective and cognitive factors involved in their firesetting behaviour particularly challenging (e.g., Hobson, 1986). In addition, Fineman (1980, 1995) acknowledged feelings of anger before an act of firesetting, but all other emotions are ignored. Further, the proposed typology does not incorporate the range of taxonomic knowledge regarding possible motives underlying firesetting (e.g., revenge, excitement, thrill-seeking). Fineman (1995) does not provide any indication of the

psychological or clinical features that may be associated with each sub-type or how individuals might differ in terms of their treatment needs. Further, although communication difficulties are considered a contributing factor, the theory was developed with juveniles who set fires and lacks empirical adequacy when applied to adults with IDD. The theory is grounded in historical evidence pertaining to children and has not yet been validated with a sample of adults with IDD, who may have prominent characteristics and motivations for setting a deliberate fire.

The Multi-Trajectory Theory of Adult firesetting (Gannon et al., 2012)

More recently, the Multi-Trajectory Theory of Adult firesetting (M-TTAF; Gannon et al., 2012) was developed using a theory knitting approach (Kalmar & Sternberg, 1988), integrating the parts of existing psychological theories (e.g., learning theory, including social learning theory, and information processing theories, such as schema theory) that are supported by empirical evidence with new ideas and existing research. The M-TTAF is composed of two tiers (Gannon et al., 2012). Tier one contains the overall theoretical framework of deliberate firesetting for adults who set fires, presenting the factors and mechanisms that interact to facilitate and reinforce firesetting. Tier two describes five prototypical trajectories, grounded in the theoretical framework of Tier one, that adults who set fires may follow (i.e., patterns of characteristics leading to firesetting behaviour).

Gannon et al. (2012) suggested that fire interest (i.e., elevated interest in fire), offence-supportive cognitions (i.e., drawn from schemas that directly and indirectly support firesetting), self-emotional regulation issues (i.e., goal setting, self-monitoring, evaluation processes associated with self-control, impulsivity), and communication problems (i.e., lack of social skills, assertiveness) are all likely to be associated with deliberate firesetting behaviour. Authors of the M-TTAF considered psychological vulnerabilities (e.g., inappropriate fire interest, offence supportive cognition, communication problems), developmental factors (e.g., caregiver environment, abusive experiences), cultural factors (e.g., societal beliefs and attitudes towards fire), social learning (e.g., fire experiences,

vicarious learning), biological factors (e.g., brain structure), and contextual factors (e.g., life events). Proximal factors and triggers (e.g., life events, internal affect or cognition, cultural and biological factors) and moderating factors (e.g., poor mental health and low self-esteem) are suggested to interact with and exacerbate existing psychological vulnerabilities so that they become critical risk factors, placing individuals at increased risk of deliberate firesetting. Gannon et al. (2012) adopted aspects of learning theory and hypothesised that the maintenance of firesetting behaviour could be explained in terms of positive reinforcement (e.g., positive affect and associated cognition) and negative reinforcement (e.g., intense supervision around fire leading to reduced levels of stress), which further compounds psychological vulnerabilities. Gannon et al. (2012) explained desistance from firesetting, arguing desistance resulted from increased feelings of personal control, self-direction, and social support. These feelings are achieved through engagement in therapeutic interventions and/or external influences (e.g., opportunities or peers, which promote such skills). Mental health was emphasised as a moderating factor on firesetting behaviour and authors gave some consideration to cognition and communication difficulties. A key strength of the M-TTAF is that researchers emphasised that the psychological vulnerabilities, risk factors and triggers may vary between individuals, therefore explaining variability between populations.

Tier two of the M-TTAF describes five prototypical trajectories: ‘antisocial cognition’ (individuals who engage in a criminal lifestyle without a specific interest in fire, but rather set a fire as a means to an end and are motivated by boredom, vandalism, crime concealment, profit or revenge), ‘grievance’ (individuals with no particular interest in the fire but who are motivated by revenge), ‘fire interest’ (individuals who are fascinated with fire, use fire as a coping strategy, demonstrate attitudes that support firesetting and lack impulse control), ‘emotionally expressive/need for recognition’ (individuals with communication difficulties who set fires as a cry for help, to self-harm/commit suicide or to satisfy an intense need for social recognition), and ‘multi-faceted’ (individuals who amongst other factors have cognitions and behaviours supportive of a general criminal lifestyle, a pervasive and long-standing interest in fire, self-regulation issues, and communication problems). The proposed five prototypical

trajectories can be used as a tool by clinicians, therefore providing guidance for the purposes of more accurate risk assessment and planning of effective intervention.

The M-TTAF brings together the strongest parts of previous theories that are supported by empirical evidence, for example, Jackson et al.'s (1987) emphasis on learning and reinforcement. The complex interactions between factors are emphasised and unlike other multifactorial theories, the M-TTAF provides trajectories to adult firesetting. In their attempt to provide a comprehensive theory of firesetting behaviour, authors of the M-TTAF incorporate a wide range of factors relevant to firesetting behaviour. However, some of the factors included may not be relevant to adults with IDD as current research has predominantly been conducted with non-IDD populations. The M-TTAF is therefore limited in its scope and lacks detail regarding how the offence process unfolds for adults with IDD who set fires. The trajectories proposed by researchers are yet to be supported by substantial empirical evidence and it is unclear whether adults with IDD are likely to follow certain trajectories over others as their criminogenic needs and vulnerability factors have not yet been sufficiently explored.

Single Factor Theories of Firesetting

Authors of single-factor theories have attempted to explain a solitary factor thought to be associated with a broader phenomenon and its causal relationship (Ward & Hudson, 1998). Although described in the literature as single-factor theories (e.g., Gannon and Pina, 2010) authors of the psychoanalytical theory (e.g., Freud, 1932), biological theory (e.g., Virkkunen et al., 1987; 1994), and the social learning theory (Bandura, 1976) have not claimed to specifically explain firesetting behaviour using a single factor. Rather, authors draw on different single approaches and apply these to explain firesetting behaviour. Therefore, the extent to which they are single-factor theories is debatable. Nonetheless, authors of the psychoanalytical theory (e.g., Freud, 1932), the biological theory (e.g., Virkkunen et al., 1987; 1994), and the social learning theory (Bandura, 1976) have contributed towards our understanding of firesetting behaviour.

The Psychoanalytical Theory (Freud, 1932)

Authors of the psychoanalytical theory have argued that firesetting occurs as a result of repressed sexual urges and a sexual interest in fire, whereby firesetting behaviour originates from either a urethral or oral fixed sexual drive (Freud, 1932). Freud's early work was later elaborated on by other writers (e.g., Gold, 1962; Macht & Mack, 1968; Stekel, 1943). Gold (1962) proposed that the premise of firesetting behaviour was an element of one's personality, relating to sexual disturbance and urinary malfunction. Children were believed to experience enuresis as a result of attempting to extinguish firesetting occurring in dreams. Firesetting was also believed to symbolize repressed sexual urges (Barnett & Spitzer, 1994; Glancy et al., 2003; Kaufman et al., 1961; Vreelan & Levin, 1980).

However, a link between firesetting and sexual psychopathology is not well supported by empirical evidence (Barnett & Spitzer, 1994; Doley, 2003; Gannon & Pina, 2010; Harris & Rice, 1984). For example, research with imprisoned adults who set fires has shown no link between sexual motivation and firesetting (Prins et al., 1985; Hurley & Monaghan, 1969). Further, other risk factors impacting an individual that ultimately result in an act of firesetting were not considered, for example, environmental factors, cultural factors, and biological factors. Lastly, the psychodynamic theory of firesetting has not been empirically validated with a sample of adults with IDD who have set a fire, nor has it been developed based on evidence from samples of adults with IDD who have set fires.

Biological Theory (Barnett & Spitzer, 1994; Virkkunen, 1984; Virkkunen et al., 1987; 1994; 1995)

Authors of the biological approach to firesetting proposed several factors related to human biology, for example, genetics and brain structure. Researchers have suggested monoamine neurotransmitter differences have been found in individuals who have set fires (Roy et al., 1986; Virkkunen et al., 1987; 1989). Further, a variety of brain and chromosome anomalies have been implicated in firesetting, such as impoverished frontal lobe function (Calev, 1995; Friedman & Clayton, 1996), posterior abnormalities (Meinhard et al., 1988),

epilepsy (Carpenter & King, 1989; Mende, 1960), and Klinefelters or XYY syndrome (Eytan et al., 2002; Kaler et al., 1989; Nielson, 1970). Blood sugar disturbances have also been suggested as a contributing factor in firesetting behaviour (Roy, et al., 1986; Virkkunen, 1984; Virkkunen et al., 1989). However, the association between blood sugar levels and firesetting is not indistinct, as such symptoms have been observed in other adults displaying impulsive and violent behaviour, but who have not set a fire (Virkkunen, 1986).

Biological factors may contribute to the explanation of why some adults set multiple fires over their lifetime. Arguably, biological explanations of firesetting do not account for all variables that impact an individual's risk of firesetting (e.g., social, developmental, environmental). Although, the environment has constantly influenced and shaped human biology, which has arguably had an impact on behaviour. The distinction between human biology, the environment and behaviour are not clear and further research is needed to better understand the gene-environment interactions. Nevertheless, limited evidence has supported the biological evidence. Evidence to suggest a direct link between our biology and firesetting is of poor methodological quality and findings are not based on large samples of adults with IDD. Single case study designs pertaining to adult males without IDD have reportedly shown a more significant association between biology and firesetting (e.g., Roy et al., 1986). However, results are not generalisable or reliable. Further exploration of these factors, conducted by a range of researchers, is required if there is to be a more comprehensive understanding of firesetting behaviour.

Social Learning Theory (Bandura, 1976; Kolko & Kazdin 1986; Macht & Mack, 1968; Singer & Hensley, 2004; Vreeland & Levin, 1980)

Authors of the social learning theory have argued that deliberate firesetting is a learnt behaviour. It is focused exclusively on how behaviour is learnt through reinforcement and observation, otherwise known as vicarious learning (Bandura, 1976; Gannon & Pina, 2010; Kolko & Kazdin, 1986; Macht & Mack, 1968; Singer & Hensley, 2004; Vreeland & Levin, 1980). Authors of the social learning theory considered developmental experiences, triggers,

and expectations that may contribute to an act of deliberate firesetting (Gannon & Pina, 2010). Learning associated with fire is thought to occur vicariously through exposure to fires or role models using fire (e.g., parents and caregivers). Evidence has supported the social learning theory as adults who set fires are more likely to have experienced early exposure to fire (Macht & Mack, 1968; Wolford, 1972), to have experienced fire as a form of punishment (Haines et al., 2006; Ritvo et al., 1983), or to have a family history of firesetting (Rice & Harris, 1991).

Other motives of firesetting explained by the social learning theory include fire interest, which may develop from early positive exposure to fire (e.g., a firefighter father; Gannon & Pina, 2010). Furthermore, revenge or firesetting related to anger (i.e., displaced aggression; McKerracher & Dacre, 1966) may also be adequately explained by social learning theory. Poor childhood socialization (i.e., poor role models and developmental adversity) may result in experiences of perceived failure, aggression, poor coping, and low assertiveness, which may increase an individual's propensity to light fires. Firesetting is used as a way to gain some level of environmental control, thereby positively reinforcing firesetting behaviour (Vreeland & Levin, 1980).

Positive reinforcement of firesetting might include sensory stimulation (e.g., hearing the sirens, smelling the fire, feeling the heat from the fire). This might be particularly significant for autistic adults, who may experience either hyposensitivity or hypersensitivity leading them to seek sensory stimulation (Delacato, 1974). Negative reinforcement of firesetting might include feelings of stress/anxiety, whereby setting a fire temporarily removes or reduces these feelings leading to further incidents of firesetting. Although, an association between firesetting and hyposensitivity or hypersensitivity has not been well supported by empirical evidence. Further research to explore the links between symptoms associated with IDD and firesetting is required to fully understand adults' motivation for starting a fire.

As with the other single-factor theories, the social learning theory has not been developed with a sample of adults with IDD and it does not consider the complex interaction

between historical and proximal factors that ultimately leads to an offence of deliberate firesetting. Further empirical evidence is needed to support the possible associations between the principles of social learning theory (i.e., reinforcement and observation) and firesetting behaviour among adults with IDD specifically.

Micro-Theories of Firesetting

The development of micro-level theory is considered important as they describe how the offence process or phenomena unfolds over time (Cassar et al., 2003). Whilst level one and two theories attempt to explain firesetting behaviour for the larger population, the micro-level theory focuses on individuals and small groups to explain the process of offending behaviour. Two offence chain theories, i.e., the Descriptive Model of the Offence Chain for Imprisoned Adult Male Firesetters (DMAF; Barnoux et al., 2015) and the Firesetting Offence Chain for Mentally Disordered Offenders (Tyler et al., 2014) have been developed. Offence chain models represent descriptive accounts of offending behaviour based on data provided by adults who have set fires themselves. Data collected pertains to the cognitive, behavioural, affective, and contextual factors associated with their crime.

Descriptive Model of the Offence Chain for Imprisoned Adult Male Firesetters (DMAF; Barnoux et al., 2015)

The Descriptive Model of the Offence Chain for Imprisoned Adult Male Firesetters (D-MAF; Barnoux et al., 2015) provides a clear account of firesetting for adult males detained in prison. Using records from seven prison establishments in England and Wales, 38 males with at least one recorded firesetting incident were identified. The model was developed using grounded theory analysis of the participants' offence chain narrative, whereby, the contextual, behavioural, cognitive, and affective events culminating in a single firesetting incident were identified (Barnoux et al., 2015). Authors of the model divided the offence chain into four phases summarised as: (i) background factors (experiences up to the age of eighteen), (ii) adulthood experiences, (iii) the pre-offence period, and (iv) the offence and

post-offence period. Authors of the model proposed links between firesetting behaviour in adults and developmental factors (e.g., behavioural difficulties, past experiences of trauma and abuse, difficulties forming and maintaining healthy relationships), psychological and personality traits (e.g., impulsivity, aggressive traits, maladaptive coping strategies, emotional regulation difficulties), psychopathology (i.e., mental health difficulties), and offence specific characteristics (e.g., an excessive interest in fire). Several fire-related vulnerability factors emerged from the data, which either developed during childhood or arose in adulthood, and included an excessive interest in fire, the normalisation of unconventional uses of fire, engaging in early deliberate juvenile firesetting, and negative experiences involving fire and the family home. Additionally, other common experiences shared by imprisoned males who set fires included negative caregiver experiences, the impact of peer influence, previous experiences of fire, and violent experiences. In addition, imprisoned adult males showed evidence of having developed certain norms and schemes that may have predisposed them to engage in firesetting behaviour (e.g., offence supportive attitudes, normalisation of violence; Barnoux et al., 2015).

Two pathways characterising an offender's progression through the model were proposed and termed the 'avoidant firesetter' or the 'approach firesetter' (Barnoux et al., 2015), which have some clinical utility in the assessment and treatment of those detained in prison who set fires. However, the D-MAF was developed based on the offence chains of adult males detained in prison establishments. Although the sample did include two participants who were diagnosed with learning disabilities, 15 males who self-reported having special needs and eight participants who had poor communications and problem-solving skills, the participant sample was not assessed for IDD, but rather relied on self-report. Therefore, findings cannot reliability be generalised to adults with IDD who set fires.

Firesetting Offence Chain of Mentally Disordered Offenders (Tyler et al., 2014)

Tyler et al. (2014) developed the Firesetting Offence Chain of Mentally Disordered Offenders (FOC-MD) using a sample of 16 males and 7 females with a diagnosed mental

disorder who set fires. As with the D-MAF, the model is composed of the same four phases: (i) background factors (i.e., caregiver experiences, family history of mental health issues or substance abuse, separation experiences, and abusive experiences), (ii) adulthood experiences (e.g., problematic intimacy, mental health problems, and substance misuse), (iii) the pre-offence period (e.g., mental health deterioration, substance misuse, life stressor, traumatic event, poor problem-solving skills, and motives), and (iv) the offence and post-offence period (e.g., fire ignition, fire knowledge, fire-related affect and cognition). Risk factors that developed as a result of early experiences (before age 18) were fire-related (i.e., early firesetting, strong effect towards fire, and fire interest), antisocial activity (e.g., early criminal behaviour, acting antisocially), mental health problems (e.g., depression, schizophrenia, obsessive-compulsive disorder), and maladaptive coping (e.g., substance misuse, social isolation, interpersonal aggression, self-harm; Tyler et al., 2014).

Authors of the FOC-MD highlighted the importance of early childhood experiences of fire and the onset of mental illness as precursors to firesetting behaviour. Tyler et al. emphasised that either positive or negative affective responses towards fire developed as a result of childhood experiences and that this affective response played an integral role in the offence process for adults with a mental disorder (Tyler et al., 2014). Participants' firesetting was directly linked to their mental health problems, which appeared to exacerbate pre-existing vulnerabilities or risk factors. The authors identified 'protection' as a motive amongst adults with a mental disorder. Interestingly, these findings indicate that a proportion of adults with a mental disorder set fires as a defensive tool, to protect themselves from perceived harm, as opposed to an aggressive or acquisitive tool.

A link between mental health needs and IDD is well established within the literature (e.g., Matson & Nebel-Schwalm, 2007; Smith & Matson, 2010). Therefore, it might be suggested that adults with IDD who set fires share some of the same characteristics and motivations for firesetting behaviour. However, none of the participants interviewed had been diagnosed with IDD. As with the other theories of firesetting, the FOC-MD has not been validated with adults with IDD and therefore has limited clinical utility for this population.

Summary and Conclusions

Whilst existing theoretical efforts in the firesetting literature recognise adults with IDD as a sub-group of adults who set fires, these theories have not been specifically developed or tested with this population in mind. Consequently, the current theory does not adequately capture factors that may be more relevant to this population (e.g., social stigma, poor problem solving, communication difficulties, particularly low self-esteem; Craig & Hutchinson, 2005; Keeling et al., 2007; Paterson et al., 2012). Arguably adults with IDD may be categorised into more than one sub-type and whether they are more or less likely to conform to these various sub-types has not yet been investigated. This limits the clinical utility of the current theory when applied to this offending group. Consequently, it remains unclear as to whether the current theory adequately explains firesetting exhibited by adults with IDD.

An integrated theory of firesetting for adults with IDD is required to firstly inform assessment and secondly to inform the delivery of specialised treatment that targets factors specific to this population. The first step towards developing an integrated theory of firesetting in adults with IDD is to develop a micro-level theory to understand how the offence process develops over time for this group and how this may differ from other groups. Offence chain models have proven highly valuable for professionals working in the assessment and treatment of offenders. Offence chain models have highlighted key dynamic risk factors to focus on as part of treatment and have provided the basis for further areas of research and theory development for different subtypes of offenders (Chambers et al., 2009). Micro-level theories examine offence styles and can improve the clinician's ability to provide evidence-based relapse prevention work for these populations (Ward et al., 1995; Gannon et al, 2008). A micro-level theory explaining the pathways to offending for adults with IDD who set fires would therefore contribute towards improved understanding and the development of evidence-based assessment and treatment for this sub-group of offenders. However, it is first important to have a robust understanding of how the characteristics and treatment needs identified in Chapters 2 and 3 have informed assessment practice. A comprehensive summary of how the characteristics and treatment needs of adults with IDD

who set fires are currently being assessed is important when evaluating their reliability and validity. Within the next chapter, a summary of the current evidence pertaining to the assessment of adults with IDD who set fires is therefore presented.

Chapter 4

Assessment of adults with IDD who set fires

Introduction

As highlighted in Chapters 2 and 3, adults who set fires have prominent characteristics and treatment needs, including fire-related risk factors. To address these treatment needs, approaches to assessment need to be specific, relevant, and accessible. Within this chapter, the assessment of adults with IDD who set fires using questionnaires will be outlined. The limitations of current assessments for adults with IDD will be highlighted, particularly in relation to their reliability and validity, and implications for the development of future assessments for use with this population will be considered. Lastly, consideration will be given to how assessments are developed for adults with IDD and how they are evaluated.

The current assessment of adults with IDD who set fires is grounded in the risk-need-responsivity model, first formalized by Andrews et al. (1990), which is based on three principles. The risk principle asserts that criminal behaviour can be reliably predicted, and treatment intensity should be matched to level of risk. The need principle relates to the importance of criminogenic needs in the design and delivery of treatment. The responsivity principle relates to how the treatment should be provided (Bonta & Andrews, 2007). This model influenced the development of offender assessment instruments and offender rehabilitation programmes (Bonta & Andrews, 2007). To reduce the risk of recidivism, adults who set fires are encouraged to participate in interventions in hospitals, prisons or in the community, which may include offence specific treatment related to their firesetting behaviour. To determine treatment needs, a combination of clinical factors, risk factors, and fire-related factors commonly associated with adult firesetting will be assessed (e.g., self-esteem, fire interest, attitudes towards fire, offence supportive beliefs). Assessment can determine treatment need, inform the level of risk (Marshall, 1996), clarify who is suitable for treatment, and index change following treatment (Keeling et al., 2007).

When conducting assessments of adults who have committed an offence, professionals can either use actuarial instruments, structured professional judgement tools, or clinical judgement. Actuarial instruments attach specific statistical weighting to different variables and are empirically derived (Bonta & Andrews, 2007). Clinical judgement relies on professionals' experience and knowledge of the factors that should be considered when making an assessment, without the use of standardised aids (Harris & Lurigio, 2007). Clinical judgement alone has been highly criticised for being limited in terms of both accuracy and inter-clinician agreement (Ægisdóttir et al. 2006). In comparison, actuarial instruments can be used to assess the risk of future offending, as scores obtained for individuals can be related to statistical reference data. However, actuarial instruments fail to provide information concerning the ways risk can be reduced or when a reduction of risk has occurred, but rather focus on static risk factors. Nevertheless, actuarial methods are considered more accurate than those based on clinical judgement alone (Ægisdóttir et al., 2006). Conversely, structured professional judgement tools define terms, provide items that have been developed based on scientific and professional grounds, and suggest methods of scoring. These instruments are informative as they offer insight into relevant factors and treatment targets. Unlike actuarial instruments, structured professional judgement tools also measure more dynamic risk factors and allow for the monitoring of the effectiveness of interventions.

The Assessment of Criminogenic Needs in Adults With IDD Who Set Fires

Several assessments have been developed, adapted, or validated for use with adults with IDD who encounter the criminal justice system. As discussed in Chapter 2, adults who set fires have a range of criminogenic treatment needs, some of which are present for adults with other types of offending behaviour (e.g., violent offending). Consequently, several assessments are also used to identify the needs of adults with IDD who set fires. Assessments focus on a range of treatment needs, including self-esteem/self-efficacy,

emotional regulation, interpersonal relationships and social skills, psychopathology, and fire-related risk factors.

As discussed previously in Chapter 2, evidence has suggested that low self-esteem/self-efficacy is common amongst adults who set fires and is thought to increase risk (Gannon & Pina, 2010). Jackson et al. (1987) conceptualised low self-esteem as an antecedent to firesetting, whereas Gannon et al. (2012) perceived self-esteem, as well as mental health as moderating factors between triggers and psychological vulnerabilities. Psychopathology has consistently been associated with firesetting behaviour and efforts have been made to understand this association (e.g., Tyler et al., 2014). In addition, psychological vulnerabilities include emotional regulation issues (Gannon et al., 2012), for example impulsivity and aggression, which are present amongst some individuals who set fires (e.g., Räsänen et al., 1996; Virkkunen et al., 1989). The association between interpersonal relationships and social skill deficits was recognised by authors when developing the M-TTAF (Gannon et al., 2012). The M-TTAF is arguably the most comprehensive theory of firesetting to date and is well supported by previous research (e.g., Enayati et al., 2008; Labree et al., 2010; Räsänen et al., 1995; Rice & Chaplin, 1979). Unlike other factors associated with adults who set fires, fire-related factors (such as serious fire interest) are associated with an increased risk of firesetting and are integrated into our theoretical understanding of firesetting behaviour, having been conceptualised as reinforcement contingencies (Fineman, 1980, 1995), psychological vulnerabilities (e.g., Gannon et al., 2012), and key risk factors (e.g., Tyler et al., 2014). Consequently, these factors are considered in the identification of treatment needs for adults with IDD who set fires. Several assessments focused on these factors associated with firesetting are highlighted and discussed further in Chapter 6.

Self-Esteem/Self-Efficacy

As discussed in Chapters 2 and 3, evidence has suggested that adults who set fires often have low self-esteem. Consequently, several tools have been developed and used

within practice and research to assess the self-esteem/self-efficacy of adults with IDD who set fires-see Table 4.1. Several tools were specifically developed for adults with IDD (Culture-Free Self Esteem Inventory - 2nd edn, Form AD; CFSEI-2; Battle, 1992), and others have been adapted to better suit the needs of the population (i.e., Evaluative Beliefs Scale-Adapted, Chadwick et al. 1999; Adapted Rosenberg Self-Esteem Scale, Dagnan & Sandhu, 1999; Rosenberg, 1965). Empirical evaluation and further research have been conducted using the tools focused on self-esteem/self-efficacy, which evidenced reliability and validity when used with this population.

Table 4.1

Measures of self-esteem/self-efficacy for adults with IDD who set fires

Measure (Authors)	**Brief Description**	**Sample & Psychometric Properties**
Culture-Free Self Esteem Inventory - 2nd edn, Form AD (CFSEI-2; Battle, 1992)	40 questions. Explores three domains of self-esteem (general, personal, and social), and includes an assessment of respondent defensiveness.	Battle (1992) reported that the CFSEI-2 had content validity, internal consistency (alpha) for each subscale (General=.71, Social=.66, Academic=.67, Parental=.76), and good test-retest reliability (.81 to .89). Six males with low intellectual functioning who had set a fire and were detained in a medium secure forensic unit (Hall et al., 2005). Six women were convicted of Arson and detained in a low secure forensic unit for adults with ID (Taylor et al., 2005).
Generalised Self-Efficacy Scale (GSES; Jerusalem & Schwarzer, 1992)	Examines the strength of an individual's belief in their ability to respond to new or difficult situations and to cope with challenges.	Internal consistency reported (Cronbach's alpha ranged from .76 to .90). Used in research: 49 female firesetters with learning disabilities compared to 41

		non-firesetters without learning disabilities (Long et al., 2005).
Self Attitude Questionnaire (Bennett et al., 1971)	Assesses overall self-esteem.	Reliability reported to be satisfactory (Bennett et al., 1971). Developed for a correctional population. Used in research: 13 male firesetters with a conviction for Arson were compared to other types of offenders, 2 of whom were 'mentally retarded' (Harris and Rice, 1984)
Evaluative Beliefs Scale-Adapted (Chadwick et al. 1999)	Assesses negative evaluative beliefs of adults, either oneself or others under six themes (i.e., a sense of worthlessness, vulnerability, weakness, badness, failure, and inferiority).	Adapted for use with 75 adults with mild ID. Mean item-total correlation of 0.55. Good internal reliability (Dagnan & Waring 2004).
Adapted Rosenberg Self-Esteem Scale (Dagnan & Sandhu, 1999; Rosenberg, 1965)	6 items that assess self-esteem, which reflects feelings of self-acceptance, self-respect, and generally positive self-evaluation.	Extensive psychometric tests showed a mean item-total correlation of 0.34 and an alpha value of 0.62. There was a test-retest correlation of 0.68 and the adapted scale has good internal reliability (Dagnan & Sandhu, 1999).

Emotional Regulation

As evidenced in Chapter 3, not all acts of firesetting have been motivated by violence. For example, evidence has suggested females are less likely to be motivated by violence or a desire to harm others, compared to males. Instead, they have been motivated by a desire to express their emotions (Nanayakkara et al., 2020). Consequently, several assessments have been specifically developed, evaluated, and used within practice and

research with samples of adults with IDD who have set a fire, resulting in several reliable and valid tools for clinicians--see Table 4.2.

Table 4.2

Measures of emotional regulation for adults with IDD who set fires

Measure (Authors)	Brief Description	Sample & Psychometric Properties
Adult Nowicki-Strickland Internal-External Scale (Norwicki, 1974)	40 items requiring a yes or no response. Quantifies the extent to which a person believes that events occur either because of their behaviour or because of events out of their control.	Previously used in research with 20 adults with mild learning disabilities who had set a fire (Kelly et al., 2009; Kelly, 2014).
Aberrant Behaviour Checklist (Aman & Singh, 1986)	Measures for the presence and severity of five behavioural domains (irritability, lethargy, stereotypic behaviours, hyperactivity, and inappropriate speech).	Normative data sets available for adults with various levels of ID and placed in various community and institutional settings and previously used with adults with IDD who set fires (e.g., Barron et al., 2004)
Modified Overt Aggression Scale (MOAS, Kay et al. 1988)	58 item questionnaire administered to caregivers. Assesses physical, verbal, property, and self-aggression using a five-point severity scale.	High (0.85-0.94) inter-rater reliability (Kay et al. 1988; Steinert et al. 2000) and previously used with adults with IDD who set fires (Burns et al. 2003).
The Spielberger State-Trait Anger Expression Inventory 2 (Staxi-2; Spielberger, 1996)	Assess an individual's propensity to express anger externally to others or inwardly to the self. 57 questions across three sections, 'how I feel right now', 'how I generally feel' and 'how I generally react when angry or furious'.	Previously the use of the Staxi-2 has been reported with this population (Burns et al., 2003; Taylor et al., 2005).
Novaco Anger Scale (NAS; Novaco, 1991, 2003) was modified for clients with learning disabilities (Novaco & Taylor, 2004).	48-item self-report measure that yields a summary score for anger disposition and includes cognitive arousal, and behavioural sub-scales.	Good reliability and validity (Novaco & Taylor, 2004). Internal consistency coefficients (Cronbach's a) were found to be 0.92 and test-retest correlations were 0.52 (Jahoda et al., 2009).

Interpersonal Relationships and Social Skills

Amongst other factors, difficulties with interpersonal relationships and social skills have characterised adults who set fires (Rice & Chaplin, 1979). Several tools have been developed focusing on the assessment of relationships and social skills, which have since been used with adults with IDD who set fires. Although the Interpersonal Reactivity Index (Davis, 1980) measure was not developed for adults with IDD, it has been used with this population and an evidence base for the reliability and validity of the assessments when used with this population has developed. Several valid and reliable assessment tools are available to clinicians who wish to assess social skills, assertiveness skills, and interpersonal skills to target interventions for adults with IDD who set fires-see Table 4.3.

Table 4.3

Measures of interpersonal relationships and social skills for adults with IDD who set fires

Measure (Authors)	**Brief Description**	**Sample & Psychometric Properties**
Interpersonal Reactivity Index (Davis, 1980).	28 items across four subscales (fantasy, perspective taking, personal distress and empathic concern)	Internal reliability (alpha) between 0.71 and 0.77 and test-retest reliability between 0.62 and 0.71 reported.
Social Problem-Solving Inventory-Revised (D'Zurilla et al., 1999)	Assesses five dimensions of social problem solving (i.e., positive problem orientation, negative problem orientation, rational problem-solving style, impulsive problem-solving style, and avoidant problem-solving style).	Previously used with adults with IDD who set fires (Hickman et al., 2017) and when suitably modified was reported as reliable (Hamilton et al., 2006).
Awareness of Social Inference Test-Part One (McDonald et al., 2002)	28 vignettes in which a professional actor portrays one of seven basic emotional states (happy, sad, fearful, disgusted, surprised, angry, neutral). The ability to correctly recognize emotional expression is assessed by asking subjects to decide which of the basic seven categories each emotional expression represented.	Previously used with adult offenders with ID, including those who have set a fire (Patterson & Thomas, 2014; Rogers et al., 2018).

Rathus Assertive Schedule (Rathus, 1973)	30-item measure. Determines self-reported assertiveness across a variety of social situations	Previously used in research with adults with IDD who set fires (Harris & Rice, 1984). Moderate to high test-retest reliability (**r** =.78; **p**<.01) and split-half reliability (**r** =.77; **p**<.01), as well as satisfactory validity (**r** =.70; **p**<.01) reported.

Psychopathology

As discussed previously, evidence pertaining to adults who set fires, suggested that contact with psychiatric services and comorbidity is common for adults with IDD who set fires. Holst et al. (2019) reported that as many as 49.4% of the total sample of adults with ID who set fires had co-occurring conditions including attention deficit hyperactivity disorder, disruptive behavioural disorders, developmental disorders, and personality disorders. Further, 43% had a history of drug and/or alcohol misuse and 6% had Klinefelter's Syndrome (Holst et al., 2019). Two assessments in relation to psychopathology have been specifically developed or validated with a sample of adults with IDD who set fires-see Table 4.4.

Table 4.4

Measures of psychopathology for adults with IDD who set fires

Measure (Authors)	**Brief Description**	**Sample & Psychometric Properties**
Psychopathology Instrument for Mentally Retarded Adults (PIMRA; Senatore et al., 1985)	Standardized assessment tool with 56 items, which assess seven types of psychopathologies (schizophrenic, affective, psychosexual, adjustment, anxiety, somatoform, and personality disorder)	Used by NØttestad & Linaker (2005) in their assessment of adults with ID assigned to preventive supervision during 2002, 22% of whom had set a fire.
Psychiatric Assessment Schedule for Adults with Developmental Disabilities-	Scores from 25 items are combined into three subscales (possible organic	A validated diagnostic screening instrument for

Shortened version (Moss et al., 1993)	condition, possible affective or neurotic disorder, and possible psychotic disorder).	mental disorders in individuals with ID. Used with adults who have a history of firesetting (e.g., Barron et al., 2004).

Fire Related Factors

To date, two assessments have been specifically developed for adults with ID that focus on fire-related factors associated with offending behaviour-See Table 4.5. However, there are issues with the lack of information about their reliability, validity, and clinical utility due to a lack of psychometric evaluation. Murphy & Clare (1996) suggested the Fire Interest Rating Scale lacked discriminative validity with the exception of one item for which authors reported a significant difference between mean ratings for firesetters and non-firesetters for which respondents were asked to rate how they feel watching an ordinary coal fire in a fireplace (Murphy & Clare, 1996). Adults described as "having abilities in the mild mental handicap or borderline range" identified the events, feelings, and cognitions prior to setting fires. However, they were less able to reliably identify the events, feeling and cognitions that occurred after the fire had been set. Furthermore, for the measures to be valid, respondents are required to have good verbal skills and an ability to label emotions, therefore excluding adults with more severe impairments. Also, having been developed in 1996, these measures predate more recent advancements in the field and have not been developed for use with autistic adults.

Table 4.5

Measures of Fire Related Factors for adults with IDD who set fires

Measure (Authors)	Brief Description	Sample & Psychometric Properties
The Fire Interest Rating Scale (FIRS; Murphy & Clare, 1996)	14 descriptions of fire-related situations focused on the use of fire to solve problems, the necessity of fire safety measures, and	Developed with 10 adults with a learning disability admitted to a hospital facility for adults with challenging

	how common it is for adults to set fires or be accused of having set a fire.	behaviours (Murphy & Clare, 1996).
The Firesetting Assessment Schedule (FASch; Murphy & Clare, 1996)	32 items examining the events, feelings, and cognitions before and after setting a fire. Respondents are asked to rate items as either true or false.	Developed with the same groups of 10 adults with ID as above. Murphy and Clare (1996) reported reasonable test-retest reliability.

Within the non-IDD literature, there are several other measures used to assess fire-related factors associated with offending behaviour-see Table 4.6. Unlike the Fire Interest Rating Scale (FIRS; Murphy & Clare, 1996) and the Firesetting Assessment Schedule (FASch; Murphy & Clare, 1996), the Identification with Fire Questionnaire (IFQ; Gannon et al., 2011) was not developed or validated for adults with IDD. Consequently, items might be more challenging for this population to answer due to known deficits in abstract reasoning (Solomon et al., 2011). Taylor et al. (2002) reported that overall scores for the Fire Interest Rating Scale (Murphy & Clare, 1996) and Fire Attitudes Scale (FAS; Muckley, 1997) showed improvements in a small sample of 14 adults with mild and borderline ID detained in a low secure hospital following group firesetting treatment. These findings are suggestive of a possible relationship between items on the Fire Interest Rating Scale and Fire Attitudes Scale, and firesetting behaviour. Despite a lack of evidence concerning the validity of these measures when used with this population, the Five-Factor Fire Scale (Ó Ciardha et al., 2015), which combines items from the Fire Attitudes Scale (Muckley, 1997), the Identification with Fire Questionnaire (IFQ; Gannon et al., 2011), and the Fire Interest Rating Scale (Murphy & Clare, 1996), is currently used in practice when assessing adults who set fires for treatment suitability and therapeutic evaluation (Gannon et al., 2013; Gannon et al., 2015). However, research does not support the validity of these measures when used with this population, therefore limiting our knowledge, and understanding of firesetting behaviour amongst adults with IDD.

Table 4.6

Measures of Fire Related Factors for adults without IDD who set fires

Measure (Authors)	Brief Description	Sample & Psychometric Properties
Identification with Fire Questionnaire (IFQ; Gannon et al., 2011)	Measures the degree to which individuals may identify with fire.	Initial findings suggest acceptable internal consistency when used with 256 un-apprehended firesetters (α = .71; Barrowcliffe & Gannon, 2015).
Fire Attitudes Scale (Muckley, 1997)	Explores offence supportive attitudes and beliefs about fire.	Poor internal consistency (α = .64; Barrowcliffe & Gannon, 2015).
Four Factor Fire Scale (O' Ciardha et al., 2015)	Incorporated items of the Fire Attitudes Scale, the Identification with Fire Questionnaire, and the Fire Interest Rating Scale to measure identification with fire, serious fire interest, poor fire safety, and firesetting as normal	Prisoners, psychiatric patients, and young offenders. Low to acceptable scale reliabilities (αs = .63 to .87) for each of the factors were reported.

Summary

Evidence suggested there was a range of assessments to guide our understanding of the treatment needs of adults with IDD who set fires. However, much of the evidence base pertains to general treatment needs or clinical factors relevant to this population, with very limited research having been conducted to provide empirical evidence for the reliability and validity of assessments of fire-related factors. In part, this may be due to the lack of good quality research having been conducted to understand the characteristics and treatment needs of this population. Nevertheless, it does suggest a robust assessment of fire-related factors for adults with IDD is required to advance our understanding of these individuals and improve evidence-based practice. An adapted measure focused on fire-related factors that have been developed for adults with IDD and evaluated will contribute towards more accurate and useful assessment practices and inform care and treatment plans.

Factors to Consider in the Development of an Adapted Treatment Assessment Tool for Adults with IDD

Several questionnaires have been developed that focus on factors associated with offending behaviour for adults with ID who set fires, although autistic adults have been largely excluded from research. Furthermore, several barriers to obtaining a reliable and valid assessment of factors associated with the offending behaviour of adults with IDD have been identified and have included communication barriers, mental health difficulties, memory deficits, and suggestibility (e.g., Emerson, 2001). Considering these barriers, the use of self-report assessments that have not been developed specifically for adults with IDD has limited the reliability and validity of assessment outcomes, thereby impeding our overall understanding of offending behaviour.

Self-report assessments require the respondent to understand the instructions, questions, and the response format (Chester et al., 2015). Authors of the DSM-5 specified that “persistent deficits” in social communication and social interaction must be present for an autism diagnosis (APA, 2013, p. 31). Despite minimal language not being a defining feature of ID, some non-autistic adults with ID also experience communication difficulties (Emerson, 2001). Visual and hearing impairments, as well as other mental health concerns can pose further difficulties for adults with IDD who set fires (Barnoux et al., 2015; Bell et al., 2018a; Emerson, 2001; Gannon et al., 2012; Jayaraman & Frazer, 2006; Lewis & Yarnell, 1951; Prins, 1994; Tyler et al., 2014; Tyler & Gannon, 2012). Due to memory deficits, adults with IDD are arguably at increased risk of suggestibility and are more likely to yield to leading questions (Clare, 1993). For example, Griego et al. (2019) reported that participants with ID displayed increased false memories and suggestibility when compared to control samples. Therefore, when assessing adults with IDD who set fires, it is important to consider the impact of communication barriers, mental health difficulties, memory deficits, and suggestibility on their ability and motivation to engage in assessment procedures. Consequently, when developing or adapting self-report assessments, several components

need to be considered, as responding to questions may be difficult for people with IDD (Nicolaides et al., 2020).

A recent systematic review of the literature on the adaptations needed to develop 'ID inclusive' self-report measures resulted in authors making 74 suggestions that addressed 25 issues for researchers to consider (Kooijmans et al., 2021). Recommendations made by Kooijmans et al. (2021) supported previous research that has explored the benefits and limitations of different formats used to ask and respond to questions. Evidence has suggested closed questions are particularly problematic for adults with IDD as they lead to acquiescence (i.e., responding affirmatively to questions regardless of their content; Clare, 1993; Finlay & Lyons, 2002). Acquiescence is likely due to the complexity of the question, rather than a desire to deceive or please, and can therefore be avoided (Finlay & Lyons, 2002). Research has suggested either/or questions as an alternative to yes/no questions to increase the validity of responses and decrease acquiescence (Sigelman et al., 1981). Nevertheless, questions with only two response options produced a systematic response bias when used with adults with IDD, whereby the second option was chosen regardless of the question asked (March 1992; Loper & Reeve, 1983). The inclusion of a 'don't know' option was recommended to reduce this risk (Bell, 2018b; Kooijmans et al., 2021), as has the simplification of the wording of questions (Finlay & Lyons, 2002). Multiple-choice questions have been used in research to increase the response rate, but the validity of responses remained low (Sigelman et al., 1982). In contrast, the utility and validity of open-ended questions when used with adults with ID has been demonstrated (e.g., Lovett & Harris, 1987; Sigelman et al., 1982; Voelker et al.,1990). Although open questions have also been shown to result in lower response rates when compared to yes/no questions and may lead to under-reporting (Sigelman et al., 1982). Alternatively, Likert scales have been shown to result in lower response rates when compared to yes/no, either/or, and open-ended questions (Sigelman et al., 1981; 1982), but the validity of responses when used with adults with ID has been demonstrated (Dagnan & Sandhu, 1999; Lindsay et al., 2009; Lindsay & Skene, 2007; Mindham & Espie, 2003). The use of pictorial aids can support the

comprehension of Likert scales leading to a decreased reliance on verbal responding and higher response rates, thereby improving the psychometric properties of a measure (e.g., Hall et al., 2014; Kooijmans et al., 2021; Lindsay et al., 2009; Lindsay & Lees, 2003; Snoyman & Aicken, 2011).

An over-reliance on self-report measures that have not been developed for adults with IDD may lead to low response rates, high response bias, and inaccurate, unreliable, and invalid outcomes (Finlay & Lyons, 2002; Heal & Sigelman, 1995; Sigelman et al., 1981). Consequently, several self-report measures have been specifically developed for adults with ID who have engaged in other types of offending behaviour, for example sexual offending (Lindsay et al., 2006; Lindsay, et al., 2007). If measures are not suitable for use in their original format with a person with ID, it is common practice to adapt assessment and to test the modified version for usability, reliability, and validity (Stancliffe et al., 2017).

The challenges of obtaining valid and reliable outcomes from self-report measures when used with adults with IDD have not been considered in the development of current self-report questionnaires focused on fire-related factors. For example, the Fire Interest Rating Scale (Murphy & Clare, 1996) used a seven-point Likert scale, raising concerns that too many response options may impact the response rate of an adult with IDD. Furthermore, for all measures focused on fire-related factors respondents are required to understand and comprehend the written text, without the support of visual aids. Consequently, the lack of evidence for the reliability and validity of assessments focused on fire-related factors when applied to adults with IDD has limited their clinical utility.

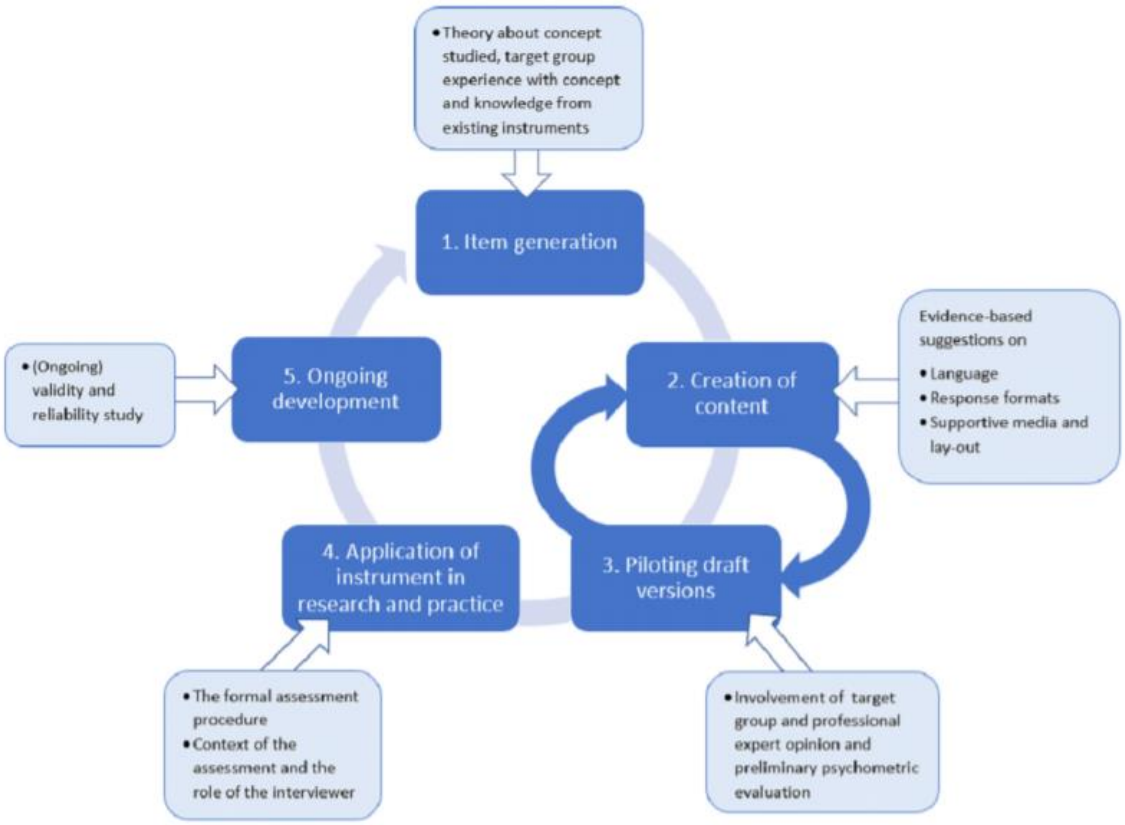
Developing and Evaluating Adapted Treatment Need Assessment Tools for Adults with IDD

Developing a tool to accurately measure an adult's treatment needs, including their cognitions, attitudes, beliefs, and motivation can be challenging. These challenges can be more apparent when it comes to the assessment of adults with IDD due to their complex

needs (e.g., communication, self-care,). Kooijmans et al. (2021) proposed the following framework, consisting of five stages (item generation, creation of content, piloting draft versions, application in practice, and ongoing development) to guide the development of self-report assessment for adults with ID (see Figure 4.1). The authors suggested that at stage one the concept under study is explored with relevant stakeholders, for example through focus group discussion. At stage two, content is created with consideration given to: (i) the format and language (i.e., vocabulary, sentence structure), (ii) response format (i.e., number of response options, open or closed questions), and (iii) supportive media and layout (i.e., visualisation of content). At stage three the draft version of the assessment is piloted with members of the target population and the comprehensibility of the instrument is evaluated. Stages four and five refer to the application of the assessment in practice (i.e., the formal assessment procedure and the role of the assessor) and ongoing development including psychometric evaluation (Kooijams et al., 2021).

Figure 4.1

Kooijmans et al. (2021) sequence of stages in ID instrument development (from Kooijams et al., 2021, page 14)



However, the assessment of an adult's cognitions, attitudes, and beliefs in relation to offending behaviour adds another layer of complexity for several reasons. The behaviour has often occurred in the past (and sometimes several days, months or even years before assessment), and there are often perceived or real implications of the assessment (i.e., on an individual's care pathway/sentencing).

As outlined previously, several psychometric assessments have been developed for adults who set fires, including the Fire Interest Rating Scale (FIRS; Murphy & Clare, 1996), the Firesetting Assessment Schedule (FASch; Murphy & Clare, 1996), the Identification with Fire Questionnaire (IFQ; Gannon et al., 2011), and the Fire Attitudes Scale (Muckley, 1997). Psychometrics is the study of the objective measurement of unobservable constructs, such

as knowledge, abilities, attitudes, personality, and educational achievement through the development and validation of assessment instruments (e.g., questionnaires, tests; Raykov & Marcoulides, 2011). Psychometric tests can be used for several purposes, including a selection of individuals, classification of individuals, evaluation, and research (Allen & Yen, 2002). Valid and reliable assessments are essential in both practice and research for the field of forensic psychology as outcomes of assessment have several implications (e.g., diagnosis, care planning, access to services or intervention). To qualify as a psychometric, tests must be standardized and scoring procedures must be objective and structured (Merenda, 2004). The methodology regarding the development of psychometric tests is grounded in the Classical Test Theory (e.g., Spearman, 1904), Item Response Theory (e.g., Hambleton & Swaminathan, 2013; Rasch. 1960), and the Generalisability Theory (e.g., Cronbach et al., 1972).

Classical Test Theory

Spearman (1904) and later Novick (1966) laid the foundation for classical test theory, which was later developed by Zimmerman (1975) and others. Spearman recognised that the information gathered from observation relies, to some degree, on inferences made about the unobserved variables and is therefore prone to error. There are opportunities for error in any measure (including self-report assessment) and classical test theory is concerned with how reliable and valid measures are. Classical test theory postulates that the observed score (X), is composed of both the true score (T) and the error score (E), whereby $X = T + E$. The true score has been described as the difference between the test score and the error score (Hambleton & Jones, 1993). When applied to adults with IDD who set fires, the difference between an adult's true attitude towards fire, for example, and what is observed or recorded is the error of measurement. It is assumed that factors other than those of interest may either decrease or increase the true score for any item, but that the true score is fixed (Allen & Yen, 2002).

As discussed above, there are several difficulties associated with the assessment of adults with IDD who set fires, which might be due to a lack of understanding for what is being asked, biased responding, or the person administering the assessment. Classical test theory accounts for two types of error, described as either systematic or random. Systematic error is consistent or regular without relevance to the construct and cannot be present if a measurement is to be considered trustworthy (Raykov & Marcoulides, 2011). The random error associated with each item is independent of all other items, whereby true scores and error scores are uncorrelated. When the multiple sources of random error are combined, they should have little to no effect on the item mean, and therefore cancel each other out. This results in the average error score in the population of respondents being equal to 0 (DeVellis, 2006). When assessments are used with a population for which they were not originally developed, this can lead to systematic error. For example, when assessments are developed to explore fire-related factors of non-IDD adults (e.g., Identification with Fire Questionnaire; Gannon et al., 2011) are used with adults with IDD who set fires, systematic error may occur due to the differences between the two populations.

Classical test theory and psychometric validation are concerned with the reliability and validity of measures. Validity concerns whether the items measure the unobserved variable or whether they are measuring some other construct. Several types of validity exist and are described as face validity (i.e., whether the measure covers relevant topics), content validity (i.e., whether the items represent the construct as it is defined), and criterion validity (i.e., how scores on one measure correlate with scores on another). Criterion validity includes predictive validity (i.e., how an individual will perform in the future) and concurrent validity (i.e., how well an individual will perform on a different assessment at the same time; Raykov & Marcoulides, 2011). Face and content validity are usually associated with assessment development and are therefore particularly relevant when developing a measure for adults with IDD who set fires as insufficient assessments have been developed to date.

To ensure that an assessment of the fire-related factors for adults with IDD has content validity, it is important to engage relevant stakeholders, in this instance professionals

working with adults with IDD who set fires and adults with IDD, in the assessment content (Kooijmans et al., 2021). One method of ensuring expert consultation is through a Delphi exercise and/or focus group. Construct validity can be determined through methods such as factor analysis (Raykov & Marcoulides, 2011), which is concerned with the internal structure and dimensionality of a measure (i.e., whether the assessment measures just one construct, how many factors exist in a measure and which items load onto which factors). Statistical control can be exerted over factors and additional, more subtle, and less important characteristics, may often be identified until there is no association between items (DeVellis, 2006). Other procedures associated with classical test theory include factor rotation, which is used to find a perspective that emphasizes each item's single strongest characteristic. Clusters of items that share the same strong characteristic are then identified (DeVellis, 2006).

Procedures for establishing reliability include test-retest reliability, inter-rater reliability, split-half method, alternative forms, and internal consistency reliability (Raykov & Marcoulides, 2011). When measuring test-retest reliability, the measure is completed on two separate occasions. This can be particularly useful when recruiting from smaller populations. Inter-rater reliability establishes the proportion of variance that can be ascribed to the variable of interest rather than the unique characteristics of the rater, whereby the degree to which two raters agree are measured (Raykov & Marcoulides, 2011). However, it is not possible to argue with certainty that a scale is wholly valid, as the validity is likely to vary dependent on the setting and population.

Classical test theory is particularly useful if individual items do not capture the unobserved variable well, as adding more items can improve reliability as errors associated with each item are more likely to balance each other out and therefore have a smaller effect on the average score for the items (DeVellis, 2006). Consequently, scales are often long and consist of several items that are often similar, leading to superficial features that are not of interest being identified as factors that are similar across items, therefore increasing how well they correlate. However, this can be problematic when using an instrument with adults

with IDD who find it challenging to engage in assessments for a long period. Furthermore, different samples with different variances will not produce the same data or data that can be easily compared across samples. Despite its limitations, classical test theory is widely used within social science research and programmes for performing procedures (i.e., factor analysis) that are associated with classical test theory are widely available. Many of the aspects of validity and reliability are relevant to the assessment of adults with IDD who set fires depending on the type, purpose, and context of the assessment. Where the focus is on assessing fire-related factors to inform formulations and treatment plans (including to identify treatment targets and record change), specific measurement properties will be particularly appropriate (e.g., test-retest reliability, construct validity). In comparison, other aspects of validity (e.g., cross-cultural validity, sensitivity, and specificity) are more applicable to translated measures or diagnostic and screening assessments but are unnecessary to consider when adapting existing measures of fire-related factors for adults with IDD who set fires in the UK.

Item Response Theory

Item response theory (e.g., Hambleton & Swaminathan, 2013; Rasch. 1960) evolved from classical test theory as authors were concerned with how well tests work and how closely they relate to the construct being measured. In contrast to classical test theory, in which analysis is conducted on the whole measure, item response theory analysis is conducted at an item level (Wu et al., 2016). Item response theory does not assume that each item of a test is equally difficult and evaluates respondents without depending on the same items included in the test (Hambleton & Jodoin, 2003). Therefore, item response theory can be used to model rating scales where there is no correct response, rather more or less of a given trait, for example Likert scale ratings (Kean & Reilly, 2014). Many models have been formulated that predict person scores based on ability or latent traits and establish a relationship between a person's item performance and the set of traits underlying item performance. Models include the one-parameter Rasch model, binary models for items

that have two outcomes, and polytomous models for items with multiple outcomes (Embretson & Reise, 2013). Advantages of the item response theory include its lack of dependence on the sample for test characteristics and the ability to predict responses for items depending on an individual's latent traits (Zanon et al., 2016). However, a larger sample size is necessary to develop or refine item response theory models (Kean & Reilly, 2014). Adults with IDD who set fires are a relatively small population, and item response theory may therefore not be possible. Furthermore, an adapted assessment for adults with IDD would be used as a tool to identify relevant treatment needs and discriminate between adults who set fires and those who do not, rather than as a means to determine ability or performance.

Generalisability Theory

Alternatively, generalisability theory was formally introduced by Cronbach et al. (1963; 1965; 1972) and has more recently been developed further (e.g., Raykov & Marcoulides, 2011). Unlike, classical test theory, the different multiple sources of error are explored (e.g., errors associated with testing occasions, test items, and raters). To explore the different sources of error, generalisability theory employs Analysis of Variance methods. Instead of estimating a true score, as in classical test theory, the focus of generalisability theory is on the average score that would be expected across all possible variations in the measurement procedure (e.g., different raters, forms, or items). Generalisability theory acknowledges that some degree of error exists when generalising from a particular sample of behaviour and quantifying this error is a central focus of generalisability theory (Shavelson & Webb, 1991). The use of generalisability theory involves carrying out two types of studies: generalisability studies and decision studies. Generalisability studies are focused on the estimation of the degree of measurement variance attributable to different sources of variance (e.g., variance due to different raters). Decision studies are focused on estimating as many sources of variance as are potentially relevant, to identify the major sources of measurement error. The information gained from a generalisability study is then used to

inform subsequent decision studies, in which the goal is to “design a measurement that minimizes error for a particular purpose” (Shavelson & Webb, 1991, p.83).

Generalisability theory allows for generalisation to a wider set of conditions other than those under which a particular measurement is conducted. Although it is theoretically desirable to model all relevant sources of error, interactions, and effects, and significant concerns can unfortunately arise with greater model complexity. Compared to classical test theory, a larger sample is also required for generalisability theory.

Many aspects of validity and reliability are relevant to the assessment of adults with IDD who set fires. The application of classical test theory is sufficient for the current thesis in which a new scale focused on fire-related factors for adults with IDD will be developed and a basic preliminary evaluation will be presented (Wu et al., 2016). Classical test theory will facilitate the conduct of a pilot study, whereby a relatively small sample of participants will be recruited. In focusing on the fire-related factors, specific measurement properties will be particularly appropriate when developing a measure. When adapting existing assessments for this population, it is important to ensure the included items have content validity, which can be achieved through expert consultation in the assessment content. In addition, discriminative validity is likely to be more important as it is hoped an assessment would be better able to accurately differentiate those adults with and without a history of deliberate firesetting behaviour. Further evaluation of the structural validity such as factor analysis or principal components analysis might be applicable, depending on whether core assumptions of the analysis are met. Relevant aspects of reliability include the reliability of the assessment over time (test-retest reliability), and the reliability of the assessment items (internal consistency reliability).

Summary and Conclusions

There are several purposes of assessments, including to assess risk, inform care, develop treatment plans, or evidence effectiveness of an intervention. Gaining an accurate understanding of how the fire-related factors contributed towards an act of deliberate

firesetting behaviour for individuals with IDD through assessment may be more difficult than for non-IDD adults. The interaction between their IDD and offending behaviour may result in additional difficulties in accurately assessing their attitudes, thoughts, beliefs, and motivations related to their firesetting behaviour. Complex communication difficulties, mental health, memory deficits, and suggestibility may be factors that contribute to the difficulties of assessing this population. Assessment content is also relevant, and it is necessary to ensure the content of an assessment applies to the population, taking account of factors that are more prominent for them. However, an assessment related to fire-related factors has not yet been developed for or evaluated with adults with IDD. In part, this may be due to the lack of empirical evidence concerning the characteristics and treatment needs of this population. Nevertheless, psychometric testing has become an important aspect of forensic psychology and outcomes of psychometric tests are frequently used to inform care planning and treatment pathways for adults who set fires. The most statistically robust measure of fire-related factors developed to date is the Four Factor Fire Scale (Ó Ciardha et al., 2015). Although little is known about the factors relevant to adults with IDD who set fires, both researchers and practitioners would benefit from the development of an empirically evaluated tool specific to adults with IDD that focuses on the fire-related factors proposed by Ó Ciardha et al. (2015). An adapted tool, which is empirically validated for this population would provide a useful resource for professionals, and ultimately better inform evidence-based assessment and treatment for this population.

Chapter 5

Rationale and Research Aims

The Rationale For This Thesis

In Chapter 1, the terminology used throughout this thesis was considered, as well as the prevalence of firesetting in IDD. In Chapters 2-4, the characteristics and treatment needs of adults who set fires, as well as the theories of firesetting, and the assessment of adults with IDD who set fires were discussed. Three key areas of difficulties were identified. First, the prevalence data in Chapter 1 suggested adults with IDD do set fires, despite there being a lack of research across different stages of the criminal justice system.

As demonstrated in Chapter 2, the characteristics and treatment needs of firesetters are well understood. However, the similarities and/or differences between adults with and without IDD have not been identified. A systematic review of the current evidence on adults with IDD who set fires would contribute towards our understanding of their characteristics and treatment needs and identify relevant assessments and interventions available to clinicians working with this population.

In Chapter 3, the theories of adult firesetting were considered in terms of their validity in explaining firesetting behaviour for adults with IDD. The findings of Chapter 3 highlighted that no theories to date have been developed for this population, which limited their clinical utility. Despite the M-TTAF providing a more comprehensive aetiological explanation of firesetting (Gannon et al., 2012), authors did not consider how factors associated with firesetting behaviour might be different for adults with IDD who have several prominent characteristics (e.g., social exclusion, difficulties with communication). Consequently, the current theory is limited in the extent that it can inform evidence-based practice. Furthermore, theories that focus on understanding how the offence process unfolds over time for adults who set fires are limited to samples of imprisoned males (Barnoux et al., 2015) and adults with a mental disorder (Tyler et al., 2014). A better understanding of

whether current micro-level theories can be applied to adults with IDD is therefore needed to inform both higher-order theories, assessment, and treatment.

Lastly, emerging research has suggested adults with IDD do set fires. Furthermore, evidence has suggested that there characteristics and treatment needs more prominent amongst this population. However, research to date has not considered whether adults with IDD would benefit from specialist assessment, or whether generic approaches are valid and reliable when applied to this population. Current assessment tools focused on fire-related factors (i.e., fire interest, identification with fire, fire normalisation, poor fire safety) have not been developed with this population.

The current research aimed to contribute towards our understanding of the characteristics and treatment needs of adults with IDD who set fires and develop an assessment scale focused specifically on fire-related factors associated with offending behaviour. A mixed-methods approach was utilised across four studies, which are presented in Chapters 6-9. The aims and methods of each study are outlined below.

Ethical Considerations

Several associated ethical issues were identified prior to conducting the research in relation to power, coercion, informed consent, right to withdraw, and confidentiality. Adults with IDD are considered a vulnerable participant population when conducting research leading to concerns regarding their ability to make informed and voluntary decisions due to communication challenges, coercive social contexts, and social isolation (e.g., Cambridge & Forester-Jones, 2003; Dalton & McVilly, 2004; Freedman, 2001). Several precautions were therefore taken to ensure the research was conducted ethically.

For participants detained under the Mental Health Act (2007), their clinical care team were asked, prior to being approached by the researcher, whether they held any concerns about them giving informed consent and only participants who were considered to have capacity were approached by the researcher. While this helped to ensure that information about the study was shared with likely eligible participants, it also increased the probability of

gatekeeping by clinicians. Potential participants were provided with an ‘easy read’ information sheet and consent form detailing the steps involved in the research process and their right to anonymity and to withdraw (see Appendices). Information was read aloud to participants to ensure adequate comprehension and their understanding was checked to ensure that they were able to understand, retain, and weigh information about the study to ensure that informed consent was obtained prior to participation. The researcher was also contactable to answer any questions for the duration of the study.

To avoid any potential coercion, both the information sheet and consent forms explicitly state that participation in the research is entirely voluntary and a decision to not take part or withdraw at any time with have no impact on a participants’ clinical care, including the standard of care they receive, their legal rights, leave status, or privileges. Adults with IDD were also informed that participation in the research would not enhance their care in any way (e.g., through increased leave). Adults with IDD were allowed at least 24 hours to consider whether they wished to consent to take part in the study and were encouraged to speak with family, carers, or an independent advocate about their participation in the project.

Interviews were conducted in a private room to ensure confidentiality. Participants were informed of the limits of confidentiality, which included disclosures of unknown criminal offending, a risk of harm to self or others, an attempt to escape secure services or plans to act in a way that may result in a breach of security. These exceptions to confidentiality were outlined in the participant information sheet.

To maximise compliance with governance frameworks the researcher completed Good Clinical Practice training and adhered to the British Psychological Society Code of Ethics Practice (2018) and the Data Protection Act (2018) throughout all stages of the research. The researcher engaged in clinical supervision, which was provided by a qualified HPCP registered Clinical Psychologist at least once a month. In addition, steps were taken to ensure the Principal Investigator at each participating site was a qualified clinician and was contactable on each site visit. Participants recruited from the community, were

supported by a community learning disability/mental health team who was contactable during all stages of the research project.

Research Agenda

Chapter 6: Study 1-Adults with IDD Who Deliberately Set Fires: A Systematic Review

The aim of Study 1 was to systematically examine and synthesise existing research to determine what was known about adults with IDD who set fires. The specific aims were: (i) to identify the prevalence of adults with IDD who set fires, (ii) to highlight the characteristics and treatment needs of adults with IDD who set fires, (iii) to highlight offence related characteristics of adults with IDD who set fires, and (iv) to evaluate the assessment tools and interventions available to clinicians working with adults with IDD who set fires. To ensure a comprehensive search of the literature, several databases were searched (i.e., PsychINFO, PsychARTICLES, Medline, CINAHL Plus with Full Text, Criminal Justice Abstracts, SCOPUS, Open Grey, and the University of Kent arson library), and ancestry searches were conducted. The review included was both qualitative and quantitative literature. The methodological quality of studies was assessed using the Mixed Methods Appraisal Tool (Hong et al., 2018). The findings from Study 1 highlighted several gaps in the research that warranted further attention. The lack of research that has focused specifically on understanding the firesetting behaviour of adults with IDD informed the aims of Study 2. Some prominent characteristics and treatment needs for adults with IDD who set fires were identified (e.g. emotional and physiological arousal as a motivation for firesetting), which contributed towards the development of items included in the assessment scale developed in Study 3. Key aspects of the results will be discussed in terms of the implications for policy and practice.

Chapter 7: Study 2- The Preliminary Firesetting Offence Chain for Adults with IDD

The specific aim of Study 2 was to assess the validity of current micro-level theories of adult firesetting when applied to a sample of adults with IDD. Whether adults with IDD

follow the same offending pathway as incarcerated adult males (Barnoux et al., 2015) or adults with a mental disorder (Tyler et al., 2014) was evaluated using a grounded theory approach. In line with a pragmatic perspective, grounded theory uses an abductive process to account for observations by generating theories. Knowledge is pursued through an ongoing process of verification when coding data and reaching saturation (Morgan, 2020). A deductive approach was taken during the model validation stage, in which the conceptual components were mapped onto the existing categories of current firesetting offence chain models. As the results of this preliminary investigation indicated current micro-level theories were not valid in their original form a unified preliminary descriptive model of the offence chain of adults with IDD who set fires was proposed. The findings of Study 2 provided the first theoretical step towards informing the assessment and treatment of this population. Specifically, the preliminary descriptive model of the offence chain of adults with IDD who set fires informed the choice of initial adaptations made to items on the Adapted Firesetting Assessment Scale for Study 3. Study 2 aimed to further our theoretical understanding of firesetting by adults with IDD and was required to inform the continuing development of assessment and treatment for this population.

Chapter 8: Study 3- The development of the Adapted Firesetting Assessment Scale

It is hoped the findings of Study 2 will provide professionals with a useful resource to inform assessment and treatment of adults with IDD who set fires. Current assessment tools available to support professionals to identify the fire-related factors associated with offending behaviour are limited as the psychometric properties of the scales have not been well evaluated since their initial development in 1996. Since this time our theoretical conceptualisation of adult firesetting has developed. Consequently, the aim of Study 3 was to gain consensus on the accessibility of item adaptations made to the Fire Interest Ratings Scale (Murphy & Clare, 1996), the Fire Attitudes Scale (Muckley, 1997), and the Identification with Fire Questionnaire (Gannon et al., 2011). Qualitative and quantitative research methods were utilised, whereby items for inclusion were determined by a Delphi

exercise, a research method that “straddles the qualitative and quantitative divides” (Amos & Pearse, 2008, p.98). The Delphi exercise, as a pragmatic research method, allowed experts to reach a consensus, seeking the ‘truth’ yet accounting for the context of this ‘truth’ by acknowledging the experiences and subjectivity of the participants. Alongside the quantitative ratings of assessment tool items, a qualitative element was included to obtain deeper and richer data, which allowed for a greater understanding of the reasoning behind responses. In addition, a focus group with adults with IDD provided further qualitative data regarding the accessibility of the assessment items. The findings of Study 3 guided the development of the Adapted Firesetting Assessment Scale for adults with IDD.

Chapter 9: Empirical Study 4-The preliminary Validation of the Adapted Firesetting Assessment Scale

Following the development of an adapted firesetting assessment scale, as described in Study 3, Study 4 was conducted to pilot the Adapted Firesetting Assessment Scale. The aim of Study 4 was to investigate the reliability, validity, comprehensibility, relevance, and comprehensiveness of the Adapted Firesetting Assessment Scale when used with adults with IDD. Using a cross-sectional and between-subjects design, the evaluation of the Adapted Firesetting Assessment Scale was positioned from a more positivist perspective, conducting quantitative statistical analysis to find the objective reality of measurement properties (Yvonne Feilzer, 2010). The pragmatist position allowed for flexibility within the approach, balancing the need for robust measurement properties with the necessity of an assessment that is useful for the purposes it was developed. Therefore, expert feedback was also considered an important aspect of the assessment evaluation stage to contribute towards the evaluation. The findings of Study 4 provided preliminary evidence for the validity and reliability of the Adapted Firesetting Assessment Scale.

Chapter 10: Discussion

The final chapter of this thesis aimed to provide a general summary and a combined discussion of the findings. In addition, implications for policy and practice and future research directions are summarized and conclusions are drawn.

Ethical Approval

The research studies reported within this thesis received a favourable ethical opinion from the Social Care Research Ethics Committee (Ref. 19/IEC08/0019) and accompanying Health Research Authority approval on 26th June 2019 (IRAS: 255255; see Appendix A & B).

Chapter 6

Adults with IDD Who Deliberately Set Fires: A systematic Review

Introduction

Following a review of the literature described in Chapter 3, a systematic review was conducted as the first stage of this research to synthesise, and quality appraise existing evidence to determine what was known about adults with IDD who set fires and to evaluate tools and interventions used with this population. A systematic review is useful to reduce bias and subjectivity during the evaluation of the literature and to identify research gaps (Pussegoda et al., 2017). The current systematic review was conducted in accordance with the Cochrane (Higgins et al., 2019) and Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; Moher et al., 2009) guidance. Prior to the systematic review being conducted, the PROSPERO database was searched to ensure that the review was not replicating previous research and the review protocol was then registered with PROSPERO (Prospero ID: CRD42019132349).

Research to date on firesetting behaviour has predominantly been conducted with males without IDD in prisons or psychiatric hospitals. However, the current evidence base suggested lower general intellectual functioning, with ID and other developmental disorders common among adults who set fires (Devapriam et al., 2007; Hall et al., 2005; Lees-Warley & Rose, 2015; Murphy & Clare, 1996; Simpson & Hogg, 2001). Prevalence studies have suggested that around 1 to 22% of firesetters may have lower general intellectual functioning or ID depending upon the population sampled (i.e., inpatient, community, prison samples; Alexander et al., 2011; Devapriam et al., 2007; Hall et al., 2005; Murphy & Clare, 1996; Lees-Warley & Rose, 2015; Simpson & Hogg, 2001). However, the aetiology of firesetting by adults with IDD was not well understood, and little evidence was available to support professionals when considering assessment and formulation for this population (Taylor & Thorne, 2019). Therefore, further research was required to better understand these behaviours within this population.

Researchers are beginning to investigate the differences in the aetiology and pathways to firesetting for different groups. For example, self-protection was highlighted as a motive for firesetting among adults with a mental disorder (Tyler et al., 2014). Nanayakkara et al. (2020) concluded firesetting among females frequently occurres within the context of personality disorder, self-harm, and mood dysregulation, and was associated with the motive to relieve or express frustration. Conversely, males were more likely than females to set fires for financial profit and as an act of revenge within the context of intimate partner violence (Nanayakkara et al., 2020). Nevertheless, current knowledge on the characteristics and treatment needs of adults who set fires comes from research conducted primarily with adults who do not have IDD, which may not adequately capture some factors that may be more relevant to those with IDD (e.g., increasing social exclusion). Other areas of research have demonstrated the characteristics and treatment needs of adults with IDD who offend are different to adults without developmental disabilities who have an offending history (e.g., sexual offending; Gleaser & Deane, 1999), which warrants an in-depth examination of existing knowledge pertaining to firesetting perpetrated by adults with IDD.

Whilst there is a body of research on this topic, there has to date been no comprehensive systematic review of the literature, with existing reviews being limited in terms of sample population and methodological rigour (e.g., Allely, 2019; Campbell et al., 2016; Curtis et al., 2012; Lees Warley & Rose, 2015). To the best of the author's knowledge, no published research has been conducted to provide a clear summary of the empirical evidence pertaining to the characteristics and treatment needs of adults with IDD that has included all available empirical evidence pertaining to this population.

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Summary and Conclusion

The first aim of this review was to identify the prevalence of adults with IDD who set fires. Findings indicated that exact prevalence data varies widely according to study designs and recruitment strategies. The second aim was to highlight the characteristics and treatment needs of adults with IDD who set fires. The characteristics and treatment needs of the population were explored and findings suggested there were some prominent amongst adults with IDD who set fires (e.g., poor parental health, feelings of perceived abandonment or rejection, and difficulties forming and maintaining healthy relationships), as well as some characteristics similar to adults without IDD who set fires (e.g., socioeconomic status). The third aim was to highlight offence related characteristics of adults with IDD who set fires. Findings revealed some prominent factors (e.g., emotional, and physiological arousal as a motivation for setting a fire) and some characteristics observed in adults without IDD (revenge as a motivation for setting a fire). The last aim of the review was to evaluate the assessment tools and interventions available to clinicians working with adults with IDD who set fires. Findings revealed a lack of standardised assessment tools and treatments and a lack of unbiased, empirical research in this area.

To date, limited research has focused on understanding firesetting behaviour amongst adults with IDD. The research that has been conducted has predominantly concentrated on offending behaviour more generally and was of poor methodological quality with a high chance of methodological bias affecting study outcomes. Concerns included the small sample sizes of adults with IDD who set fires being investigated amongst other types of offenders, the lack of well-defined and validated measurements, the over-reliance on file review data collection methods, and the lack of comparison groups. In addition, the lack of standardised treatment programmes warranted increased attention, particularly given the devasting impact of such offending behaviour on the wider community. Nevertheless, evidence suggested firesetting was an issue for a minority of adults with IDD who did appear to share some characteristics with those without IDD who set fires. There was also tentative evidence that they face additional challenges which have implications for assessment,

formulation, and treatment, inclusive of risk assessment. These findings suggested adults with IDD would benefit from further research to develop an assessment scale that includes items that focus on their treatment needs. A useful assessment would include items that explore maladaptive coping strategies, impulsivity, problem-solving skills, assertiveness skills, emotional regulation difficulties, amongst more fire-specific items related to fire interest, attitudes, and beliefs. However, the characteristics and treatment needs of adults with IDD warrant further exploration. The systematic review did not identify any attempts to develop or validate current theories of adult firesetting, nor did it identify any assessments or interventions specifically developed for this population that have been sufficiently evaluated. The second empirical study of the current research project therefore sought to understand the offence chain narratives of adults with IDD and identify any factors relevant to firesetting behaviour for this population.

Chapter 7

A Preliminary Firesetting Offence Chain for Adults with IDD

Introduction

The findings of Study 1 suggested that the characteristics and treatment needs of adults with IDD who set fires warrant further exploration and investigation. Statistics have suggested that in December 2020, there were 525 adults (n = 382 males, n = 143 females) with a conviction for Arson detained under Part III of the Mental Health Act (2007) in hospitals across England and Wales (Ministry of Justice, 2020). Evidence has suggested at least 0.4-1.4% of adults who set fires have ID (Devapriam et al., 2007; Richie & Huff, 1999). However, current theoretical conceptualisations of adult firesetting may not adequately explain the factors contributing to an act of firesetting for this population. This could be problematic considering there might be specific characteristics and treatment needs more prominent amongst this population, as identified in Chapter 6. As discussed in Chapter 3, current micro-level theories describe an offence as it unfolds across time, specifying the cognitive, behavioural, motivational, and social factors associated with offending behaviour (Ward & Hudson, 1998). Two micro-level theories have been developed to explain firesetting behaviour, the Firesetting Offence Chain for Mentally Disordered Offenders (FOC-MD; Tyler et al., 2014) and the Descriptive Model of Adult Male Firesetting (D-MAF; Barnoux et al, 2015). Authors highlighted links between firesetting behaviour in adults and developmental factors (e.g., behavioural difficulties, experiences of trauma/ abuse, relationship difficulties), psychological and personality traits (e.g., impulsivity, aggressive traits, maladaptive coping strategies, emotional regulation difficulties), psychopathology (i.e., mental health difficulties), and offence specific characteristics (e.g., an excessive interest in fire). Whilst the samples used by both Tyler et al. (2014) and Barnoux et al. (2015) when developing their offence chain models included a small number of individuals who self-reported additional learning needs, neither model included individuals who had been diagnosed with a developmental disability, nor were these theories devised with this population in mind. These theories may

not have captured factors more relevant to individuals with IDD that may be associated with firesetting behaviour (e.g., social stigma, poor problem solving, communication difficulties; Chaplin et al., 2017; Gausel & Thørrisen, 2014; Karen et al., 2010). As such theories required further conceptualization to account for this population.

The aims of Study 2 were to: (i) validate Barnoux et al. (2015) and Tyler et al. (2014) micro-level theories of adult firesetting with a sample of adults with IDD who have set fires; and (ii) offer a preliminary unified descriptive model of the offence chain for adults with IDD who set fires.

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Summary and Conclusions

The development of a preliminary micro-level theory explaining the pathways to offending for adults with IDD who set fires represents an important theoretical step towards informing the assessment and treatment of this population, therefore improving evidence-based practice. The background factors associated with adults who set fires did appear to be similar for imprisoned males, adults with a mental disorder and participants recruited to the current study, including experiences of abuse. These factors have also been associated with adults who engaged in other types of offending behaviour. For example, abusive experiences are frequently reported by adults who commit a sexual offence (e.g., Craissati et al., 2002). However, at each phase of the offence process, factors more prominent for adults with IDD emerged (e.g., vulnerability factors, motives, behavioural responses). Current micro-level theories of adult firesetting were shown to not adequately account for all factors associated with firesetting for adults with IDD. Rather, adults with IDD had a different pathway to offending, although they were most alike adults with a mental disorder (as reported by Tyler et al. 2014), which is perhaps unsurprising given the high prevalence of comorbidity reported amongst the population.

Evidence from the current study suggested that at each stage of the offence chain process, factors more prominent for adults with IDD emerged (e.g., vulnerability factors, motives, behavioural responses). Furthermore, factors repeatedly observed in non-IDD populations (e.g., crime-concealment or financial gain as motives for firesetting) were not identified within the current sample. The identification of factors relevant to adults with IDD who set fires suggested current assessments should be adapted to better meet the treatment needs of this population. For example, items should cover factors relevant to a circumscribed interest in fire (such as interest in flames and fire paraphernalia), behavioural responses to fire (such as attempting to extinguish the fire), emotional responses to fire, knowledge of fire and the consequences of starting a fire. Chapter 8 of this thesis will therefore outline the findings of Study 3, in which an adapted assessment scale for adults with IDD who set fires was developed.

Chapter 8

The Development of The Adapted Firesetting Assessment Scale

Introduction

The findings of Study 1 and 2 have consistently suggested that there are characteristics and treatment needs more prominent amongst this population when compared to other adults who set fires. Furthermore, the findings of Study 2 suggested several factors that are prominent for adults with IDD at each stage of the offence process in the lead up to an incident of deliberate firesetting behaviour. Consequently, it can be assumed that current self-report assessments focused on the fire-related factors, that have not been developed for this population, may require adaptations, and further evaluation. Therefore, the aim of Study 3 was to develop an adapted scale focused on the fire-related factors relevant to firesetting for adults with IDD.

Assessments available to practitioners working with adults who set fires tend to focus upon characteristics likely to be associated with the risk of firesetting (e.g., Pathological Fire-Setters Interview, Taylor et al., 2004; Fire Attitudes Scale, Muckley, 1997; the Identification with Fire Questionnaire, Gannon et al., 2011; Fire Setting Scale, Gannon & Barrowcliffe, 2012; Firesetting Assessment Schedule, Murphy & Clare, 1996). However, as highlighted in Chapter 4, the psychometric properties of current measures when they are used with adults with IDD have not been sufficiently explored. The majority of research has taken place with samples of adults without IDD.

Ó Ciardha et al. (2015) examined the properties of the Fire Attitudes Scale, the Identification with Fire Questionnaire and The Fire Interest Rating Scale identifying four factors relevant to treatment needs of adults without IDD who set fires: (i) identification with fire, (ii) serious fire interest, (iii) poor fire safety, and (iv) firesetting as normal. Low to very good scale reliabilities (αs = .63 to .87) for each of the factors were reported. Area Under the Curve (AUC) for the four factors ranged from .580 to .650 with the strongest predictors of the factors being ‘firesetting as normal’ and ‘serious fire interest’ (Ó Ciardha et al., 2015). Using

the original scales both the FIRS and the FAS significantly predicted group membership, with the FAS demonstrating the higher AUC; AUC = .689, SE = .04, $p < .001$, 95% CI [0.62, 0.76] (Ó Ciardha et al., 2015). Despite a lack of empirical evaluation, the FIRS (Murphy & Clare, 1996), FAS (Muckley, 1997), and to a lesser extent the Four Factor Fire Scale (Ó Ciardha et al., 2015) are currently used in practice when assessing adults with IDD who set fires for treatment suitability and therapeutic evaluation (Gannon et al., 2013; Gannon et al., 2015). However, research supporting the validity of these measures when used with those with IDD is currently lacking, therefore limiting our knowledge, and understanding of firesetting behaviour.

Nevertheless, the research by Ó Ciardha et al. (2015) suggested the fire specific factors (as measured by the Four Factor Fire Scale) need to be addressed when offering treatment. Consequently, and considering the increasing theoretical understanding in this area (Ó Ciardha et al., 2015), both researchers and practitioners would benefit from the development of empirically evaluated assessment, incorporating the additional treatment needs of this population. An adapted scale, which is empirically validated for adults with IDD would provide a useful resource for professionals, and ultimately better inform treatment needs for this population. The initial steps of the sequence of stages in ID instrument development proposed by Kooijmans et al. (2021) as outline previously in Chapter 4 were followed including item generation and creation on content whereby the views and experiences of the target population and professionals was sought.

[REDACTED]

Summary and Conclusions

The purpose of this study was to adapt an assessment of fire specific factors that were informed by expert opinion and evaluated by participants from the population for whom its use is intended. At stage one, findings suggested current measures (focused on fire specific factors) were not accessible for adults with IDD. Consequently, a preliminary self-report scale was created specifically for adults with IDD and was informed by experts over three rounds of a Delphi exercise. At stage two, feedback from three adults with IDD during a focus group discussion highlighted additional areas for improvement to enhance the comprehensibility of the preliminary scale. Findings from the Delphi exercise, at stage one, and the focus group discussion, at stage two, led to the development of the Adapted Firesetting Assessment Scale.

Overall, adults with IDD in the focus group provided positive feedback regarding the accessibility of scale items and contributed towards the scale development (suggesting amendments to the language, visual prompts, and several response options). Some types of validity remain untested and need to be investigated in future studies, which will be further discussed in Chapter 10. The evaluation of the Adapted Firesetting Assessment Scale using a focus group discussion highlighted the need to involve adults with IDD in the development of assessment measures. A strength of Study 3 was that the assessment was developed in collaboration with relevant stakeholders, including professionals and adults with IDD. The inclusion of stakeholders in the assessment developed has been recommended by researchers (Kooijmans et al., 2021), and highlighted as important in the COSMIN Guidance (Terwee et al., 2018).

The current study highlighted the need to develop and evaluate assessment tools specifically for adults with IDD who present with firesetting behaviour. The needs of this group during an assessment may include additional visual material to aid understanding of the written text, structured response options, and flexibility in the time given to complete the assessment. Furthermore, the use of complex sentence structures and language, abstract concepts and double negatives are unhelpful, impeding the ability to understand what is

being asked and increasing the likelihood of an inaccurate and unreliable response. Although further empirical evaluation, in the form of a pilot study and future factor analytic work is required, findings of the current study suggest the Adapted Firesetting Assessment Scale is a resource that can be used to inform future research, assessment, treatment, and care planning for this sub-group of adults who set fires.

Chapter 9

The Adapted Firesetting Assessment Scale (AFAS): Reliability and Validity

Introduction

The previous study, as reported in Chapter 8, was conducted to develop the Adapted Firesetting Assessment Scale, which has contributed towards our understanding of adults with IDD who set fires and could be used by professionals to determine treatment need for fire-related factors associated with offending behaviour (i.e., attitudes towards fire, fire interest, fire normalisation, identification with fire, fire safety awareness). Having developed the scale in collaboration with stakeholders, the next stage of assessment development as outlined by Kooijams et al. (2021) was to carry out a pilot study to test the measure and conduct some preliminary investigation into its psychometric properties.

Therefore, the aims of Study 4 were to investigate the reliability, comprehensibility, relevance, and comprehensiveness of the Adapted Firesetting Assessment Scale using a mixed-methods approach. Findings suggested items of the AFAS were comprehensible, relevant, comprehensive, and a valuable resource they could utilize in practice. Although further improvements to the measure were necessary and a more representative sample of adults with IDD who set fires was required to explore the factorial dimensions of the scale.

[REDACTED]

Summary and Conclusions

The findings suggested that the internal consistency of the AFAS was acceptable, except for the fire safety subscale which was very poor. The AFAS had excellent test-retest reliability and the scale was able to discriminate between firesetters and non-firesetters, recognizing that firesetters had more problematic attitudes towards fire. Firesetters also scored higher, relative to non-firesetters on the fire normalisation subscale, poor fire safety subscale and had a higher total score. Participant and professional feedback was positive, indicating the AFAS was perceived by stakeholders as useful, relevant, and comprehensive. However, findings did suggest the AFAS may not be suitable for all adults with IDD, and some adults may need additional contextual information and support before providing an informed response to all questionnaire items.

The preliminary evaluation of the AFAS provided some evidence regarding the reliability and validity of the scale. Feedback from professionals and participants suggested that items of the AFAS were comprehensible, relevant, comprehensive, and a valuable resource they could utilize in practice. Although further improvements to the scale were required including the need for additional guidance and contextual information for some items, which could be developed to support professionals in the administration of the AFAS. The preliminary findings suggested the measure has acceptable internal consistency and excellent test-rest reliability. Further, findings offered some evidence that factors identified in research with adults without IDD were also important during the assessment and treatment of adults with IDD, including the focus on attitudes towards fire, cognitions pertaining to firesetting being normal and fire safety awareness. However, other factors might be less relevant for this population, including serious fire interest. Nevertheless, the findings from Study 4 highlighted the need for more research to be conducted to develop adapted measures for adults with IDD and increase our understanding of their characteristics and treatment needs. Specifically, a second pilot study should be conducted, whereby feedback from the current study is used to amend the AFAS, which is then administered to a much

larger sample of adults with IDD. Future statistical analysis should seek to explore the uni/multi-dimensionality of the AFAS.

Chapter 10

Discussion

Overview of the Research

This thesis began with an examination of the evidence concerning the prevalence of adults with IDD who set fires. The literature on the characteristics and treatment needs of adults who set fires were then explored before the theories of adult firesetting were reviewed. Three issues with the literature were highlighted.

Firstly, it was evident that research findings pertaining to the characteristics and treatment needs of adults who set fires were heavily bias towards those without IDD, which is not inherently surprising. However, adults who set fires were predominantly treated as one homogenous group of offenders limiting our understanding of those with IDD. Therefore, the possibility that adults with IDD presented with prominent characteristics and treatment needs had not been sufficiently explored. Whilst there was a body of research on the topic of firesetting behaviour, there had been no comprehensive systematic review of the literature that provided a clear summary of the evidence pertaining to the characteristics and treatment needs of adults with IDD, with existing reviews being limited in terms of sample population and methodological rigour.

Secondly, it was evident that the offence chain narratives of adults with IDD were not well understood, whereby the factors relevant to firesetting behaviour for this population had not been adequately explored. Having considered the theoretical conceptualisations of adult firesetting in Chapter 3, it was evident that current micro-level theories may not have captured the characteristics and treatment needs of adults with IDD, thus limiting their ability to inform evidence-based practice for this population.

Lastly, the evidence base pertaining to the assessment of adults who set fires was limited. Several measures had been developed, however those that were developed for adults with IDD that focused on fire-related factors predated more recent research in the field and subsequent theoretical developments. Assessments that had been developed more

recently, had not been evaluated with a sample of adults with IDD and were not developed with this population in mind.

Overview of the Main Findings

Study 1: Adults with IDD Who Deliberately Set Fires: A systematic Review

Study 1 involved a systematic review of the evidence pertaining to adults with IDD who set fires. The aims of the review were to identify the prevalence of adults with IDD who set fires, highlight their characteristics and treatment needs, along with any offence related characteristics, and evaluate the assessments and interventions available to professionals working with this population. Both qualitative and quantitative studies were included, and the methodological quality of studies was assessed. The systematic review of the literature highlighted that although researchers recruit adults with IDD to partake in research, they are often not effectively differentiated from adults without IDD in the analysis or reporting of findings. Consequently, our understanding of the characteristics and treatment needs of this population is limited.

Findings suggested that current empirical evidence pertaining to adults with IDD who set fires is biased towards adults in prisons or psychiatric hospitals and generated from studies of poor methodological quality (i.e., dated, no comparison groups, small samples, inadequate follow-up, lack of structured risk assessment tools used, reliance on secondary data). Although challenging to conduct, studies of the prevalence of IDD and firesetting should entail unbiased samples (either total population samples or random samples). However, current figures are drawn from predominantly small, biased samples (i.e., males, prison or psychiatric inpatients, offenders with a conviction of Arson), which is likely to adversely impact the accuracy of research outcomes (i.e., decrease generalisability, over or under-estimation of prevalence). For example, within samples of men and women who set fires, a greater number of males compared to females have been recruited to studies and the use of purposive rather than random sampling techniques are likely to have biased research findings. Similarly, findings suggested adults with ID are more likely to set a fire

compared to those with autism. However, identification of adults with IDD should entail a reliable and valid assessment of cognitive functioning (i.e., the Wechsler Adult Intelligence Scale, 2008), autism screening tools (e.g., Autism Diagnostic Observation Schedule; Lord et al., 1989), and a developmental interview (e.g., Autism Diagnostic Interview; Rutter et al., 2003). However, few studies used a formal, reliable, and valid assessment of IDD. In addition, 25% of included research was conducted in the 1990s, when the diagnostic criteria used to diagnose IDD were not as well defined and symptoms went unrecognised (Bristol-Power & Spinella, 1999). Consequently, the data collected across studies were sparse and inconsistent in terms of characteristics, psychological traits, psychopathology, offence related information, assessment, and treatment. For example, only Borja-Santos et al. (2010) and Scragg & Shah (1994) reported on the biological features (n=31) of adults with IDD who set fires. Similarly, the authors of only five studies reported on the length of stay in hospital for adults with IDD, of which two studies used duplicate samples. Therefore, our ability to make reliable and definitive conclusions about the prevalence of firesetting and IDD is extremely limited.

Nevertheless, the characteristics of adults with IDD who set fires do appear similar to adults without IDD who set fires across certain domains (e.g., demographic features, developmental features: traumatic experiences and childhood abuse, socio-economic status, psychological traits: aggression and impulsivity, presence of maladaptive coping strategies, and relationship/behavioural difficulties). More importantly, there is tentative evidence to suggest that adults with IDD face additional challenges, which have not been well incorporated into theory. Although, factors associated with adults who set fires may have implications for treatment (e.g., poor self-care, difficulties communicating with others, lack of appropriate support, significantly lower self-esteem, difficulties with assertiveness skills). The evidence reviewed suggested that this group are more likely to be known to mental health services (e.g., Barron et al., 2004; Devapriam et al., 2007; Leong & Silva, 1999). In addition, feeling overwhelmed or unable to cope, desperation, disempowerment, feeling mistreated and not listened to appeared common. Evidence suggested that firesetting may be

motivated by: (i) a desire to express emotions, (ii) a desire to reduce emotional and physiological arousal (e.g., distress), (iii) a desire to connect with others, (iv) a desire to communicate with others, (v) a desire to enforce change, and (vi) a desire to enable positive emotional experiences (i.e., intense sensory stimulation, feeling in control or excitement).

Further, a sub-sample of adults with IDD who set fires had no offending history, particularly amongst those with autism and average or above-average IQ (Mouridsen et al., 2008), and instead appear motivated by a circumscribed interest in fire (Barry-Walsh & Mullen, 2004; Hare et al., 1999; Murrie et al., 2002; Palermo, 2004; Radley & Shaherbano, 2011). For example, a participant with Asperger syndrome was reported to have shown a special interest in the pilot flame of a gas heater for long periods before his firesetting offence (Barry-Walsh & Mullen, 2004).

Authors who have conducted studies with adults detained in prison reported that those who set fires have a level of general intellectual functioning within the average range (Hurley & Monaghan, 1969). However, findings from this review suggested some adults with IDD do of course set fires. Furthermore, the background factors and variables that precipitate or perpetuate firesetting behaviour are likely to be very different for those with IDD compared to adults without these differences. High rates of comorbidity among this population are likely to have contributed towards their characteristics and treatment needs. Despite further research being needed to explore the association between mental health and firesetting for different offender types, adults with IDD appear similar to adults with a mental disorder who set fires in some areas (e.g., background factors, relationship difficulties and psychopathology). For example, adults with IDD were found to frequently have unstable family environments with evidence of parental separation or separation from significant others, which is arguably similar to the negative caregiver relationships observed among adults with a mental disorder who set fires (Tyler et al., 2014). Although, the similarities and differences between these populations have not been adequately explored.

Current practice regarding the assessment and treatment of adults with IDD who set fires appears to be grounded on literature that is fraught with methodological problems. The

evaluation of the effectiveness of interventions for adults with IDD who set fires has not always taken a 'gold standard' approach (i.e., randomised controlled trials). Only one randomised control trial had been completed, and the authors did not make use of masked assessors (Taylor et al., 2005), while the findings showed the self-reported anger scores significantly reduced for the treatment group compared to the control group. However, limited evidence for the effectiveness of treatment was provided by staff ratings of patient behaviour post-treatment. The only specialised interventions for adults with IDD convicted of Arson was evaluated by Taylor et al. (2006) who implemented a group-based firesetting programme. Significant treatment gains were reported on measures of fire interest and attitudes, but not depression, bearing in mind that these studies did not have a comparison sample or control group, nor was randomisation, masking, independent data management or allocation concealment used. There are associated issues with the reliability and validity of outcome measures within intervention studies for firesetting, as these constructs have not been robustly investigated. Overall, many of the intervention studies completed have used small samples of participants. Nevertheless, there are related or common elements across interventions (e.g., psychoeducation about fire, problem-solving components). Further research is needed to ensure the characteristics and risk factors associated with firesetting among adults with IDD are included within both the assessment and treatment of this group of offenders.

Study 2: A Preliminary Firesetting Offence Chain for Adults with IDD

Whilst Study 1 provided a comprehensive summary of the evidence pertaining to adults with IDD who set fires, it was noted that our theoretical understanding of adult firesetting has developed without a thorough inclusion of adults with IDD. For Study 2 a unified descriptive model of the offence chains of adults with IDD who set fires was developed using a grounded theory approach and a sample of 13 adults with IDD and a history of firesetting behaviour. At phase one of the model, circumscribed interests in violence/emergency services, and caregiver environments that were characterised by fire-

related experiences were highlighted as prominent factors present in the backgrounds of adults with IDD. Adults with IDD presented with a history of challenging behaviour and fewer previous convictions, which suggested they were less likely to present with a long history of offending. Findings supported previous research that has suggested identification with fire was a significant predictor of firesetting and one of four key factors relevant to clinical practice (Gannon et al., 2013; Ó Ciardha et al., 2015). However, unlike incarcerated adult males and adults with a mental disorder, this population were less likely to present with multiple fire-related vulnerability factors (Barnoux et al., 2015; Tyler et al., 2014).

At phase two of the model, participants were categorised as having an antisocial lifestyle outcome, despite previous research suggesting a proportion of incarcerated adult males who set fires had prosocial lifestyles (Barnoux et al., 2015). Reasons for this difference may be due to a higher prevalence of comorbid mental health issues, as well as barriers to community inclusion that provided stability reflective of a more prosocial lifestyle (e.g., lack of employment opportunities; Hendricks & Wehman, 2009). In addition to problematic intimacy, early adulthood for this population was characterised by alcohol/substance misuse, social exclusion, unstable accommodation, and an escalation of challenging and/or offending behaviour. Most participants reported experiencing social exclusion, characterised by a lack of meaningful relationships and engagement in meaningful activities, indicative of unequal social opportunities and suggestive of an environment that was too restrictive. Participants reported an escalation in offending and/or challenging behaviour before setting the fire, suggesting an opportunity for earlier intervention. Unequal social opportunities and restrictive environments may have contributed to an escalation in offending and/or challenging behaviour in adults with IDD, irrespective of the presence of an interest in fire per se.

At phase three of the model, participants were triggered and motivated to set a fire by some similar factors reported by non-IDD offenders (i.e., conflict, unmet needs, life stressors, and moral transgression, fire interest, self-harm/suicide, to cause change; Barnoux et al., 2015; Tyler et al., 2014). However, revenge and crime concealment, common

motives for firesetting reported in the wider literature (e.g., Icove & Estepp, 1987; Inciardi, 1970; Koson & Dvoskin, 1982; Pettiway, 1987; Rix, 1994), were markedly absent within the sample. Adults with IDD did report experiencing a restriction on their human rights, characterised by a lack of control over their finances, food choices, and accommodation leading them to feel disempowered and setting a fire as a way to regain control. Experiences relating to restriction on human rights and powerlessness are prevalent in the wider non-offending ID research (Connolly & Ward, 2008), but the link to challenging and/or offending behaviour has rarely been made. Adults with IDD were motivated by a desire to express emotions (i.e., distress, anger), rather than boredom, protection, crime concealment, economic gain, or to harm/kill a target (Barnoux et al., 2015; Tyler et al., 2014). Other qualitative research has provided further support for these findings (e.g., Holst et al., 2019) and may suggest adults with IDD are more likely than others to have difficulties in communication, emotional regulation difficulties, poor problem-solving skills, and impulsivity, as described in the M-TTAF (Gannon et al., 2012). However, the M-TTAF does not account for all factors identified as important in the offence chains of adults with IDD. In addition, the direct impact of peer influence in the planning phases of setting a fire for this population has not previously been identified and suggested a level of submission by less assertive or more suggestable peers into fire-related activities. Adults with IDD showed a lack of understanding for the consequences of having started the fire (e.g., could not identify a victim, did not understand the dangers of the fire) and a general lack of empathy during the post offence period, unrelated to whether participants had completed offence related psychological treatment. However, no theory to date has incorporated or identified the contributory risk factors associated with cognitive and affective empathy for this population, despite cognitive empathy skills (e.g., perspective-taking) being highlighted as a key deficit amongst autistic adults (e.g., Smith, 2009). Findings of Study 2 suggested that although adults with IDD share some similar characteristics and treatment needs with male imprisoned firesetters or those with a mental disorder, the offence chain narratives of adults with IDD who set fires revealed

factors that were more prominent for this population. Consequently, adults with IDD may require specialised assessment and treatment.

Study 3: The Development of the Adapted Firesetting Assessment Scale

The Preliminary Firesetting Offence Chain for Adults with IDD was a theoretical step towards informing the assessment and treatment of adults with IDD. However, the findings of Study 1 highlighted that measures focused on fire-related factors had not been developed in association with other stakeholder groups, nor had the evaluation of these measures focused on their comprehensiveness, responsiveness, accessibility, validity, or reliability.

Study 3 was conducted to gain consensus on the accessibility of item adaptations made to the Fire Interest Ratings Scale (Murphy & Clare, 1996), the Fire Attitudes Scale (Muckley, 1997), and the Identification with Fire Questionnaire (Gannon et al., 2011). Qualitative and quantitative research methods were utilised, whereby items for inclusion were determined by a Delphi exercise (with up to 19 experts) and a focus group discussion with three adults with IDD. The findings of Study 3 were used to guide the development of the Adapted Firesetting Assessment Scale.

In 2015, Ó Ciardha et al. developed the four-factor fire scale, measuring identification with fire, serious fire interest, firesetting as normal, and poor fire safety. Their findings suggested the fire-related factors need to be addressed when offering treatment to adults without IDD. However, the original scales that contributed towards the development of the Four Factor Fire Scale had not been adapted, and the validity and reliability of the Four Factor Fire Scale when used with adults with IDD remained untested. Therefore, an adapted scale, grounded in evidence pertaining to the fire-related factors specific to adults with IDD (e.g., fire interest), may inform treatment needs for this population and may contribute towards improvements in evidence-based practice. Study 3 provided some preliminary validation for the Adapted Firesetting Assessment Scale and represented the first step towards the further development of an adapted measure to assess the fire specific treatment needs of adults with IDD.

Nevertheless, when developing an accessible self-report scale, the importance of acknowledging the individual needs of adults with IDD was highlighted by experts during the Delphi exercise, particularly regarding the time an assessment should take to complete. Findings emphasised that adults with IDD should be provided with an opportunity to elaborate on their responses, suggesting they should be assessed using a more structured self-report scale alongside other forms of information gathering (e.g., file review, interview, third party information). A preference of between 20 and 30 minutes for the duration of an assessment was surprising given the challenges associated with having IDD, including problems with reasoning, verbal expression, reading, abstract thinking, and judgement (APA, 2013). Although, this might have reflected the need to assess multiple factors associated with firesetting behaviour, which do also warrant exploration during the assessment and treatment of adults with IDD (e.g., social skills, problem-solving skills, coping strategies, self-esteem; see Chapter 7).

Findings suggested that 10.5% of practitioners felt that adults with IDD should be given a choice of seven or more response options. However, feedback from adults with IDD during the focus group discussion and recommendations from a recent systematic review of the literature suggested that between three and four response options are optimal when working with this population (Kooijams et al., 2021). These findings raise concerns that despite professionals having extensive experience working with adults with IDD, some may still lack awareness and knowledge of some of the challenges experienced by these individuals. Alternatively, it could reflect the different needs of autistic adults, compared to autistic adults who also have ID. When prompted for additional comments, experts also failed to highlight other factors relevant to the firesetting behaviour of adults with IDD (e.g., symptoms of comorbid mental health including auditory or visual hallucinations). Participants may also have been influenced by the original scale items, which excluded factors associated with psychosis or motivations to set a fire, including to cause change (such as move accommodation) or communicate a need for more support (see Chapter 7). Despite consensus being met on scale items and experts having the opportunity to provide additional

feedback to inform future adaptations, items that required adults with IDD to understand more abstract concepts (i.e., personality and self) continued to be particularly difficult to adapt. Nevertheless, adults with IDD in the focus group provided positive feedback regarding the accessibility of scale items and their feedback contributed towards the scale development (suggesting amendments to the language, visual prompts, and several response options). Findings further emphasised the importance of involving adults with IDD in the development of assessments and supported the need for an adapted scale that is focused on fire-related factors associated with offending behaviour. Evidence for the accessibility, comprehensibility, and relevance of the Adaptive Firesetting Assessment Scale was provided.

Study 4: The Preliminary Validation of the Adapted Firesetting Assessment Scale

Following the development of an adapted firesetting assessment scale, as described in Study 3, the aim of Study 4 was to conduct a preliminary pilot study to test the reliability, validity, comprehensibility, relevance, and comprehensiveness of the Adapted Firesetting Assessment Scale. A cross-sectional and between-subjects design was used with 59 adults with IDD to evaluate the Adaptive Firesetting Assessment Scale. Findings of Study 4 suggested the AFAS had acceptable internal consistency and excellent test-retest reliability. The attitudes towards fire, fire normalisation, poor fire safety subscales and total scores discriminated firesetters from non-firesetters. Content analysis of feedback indicated the AFAS was easy to understand, relevant, accessible, and comprehensible. The findings of the pilot study indicated that the measure should be subjected to more rigorous psychometric evaluation using a larger sample.

Contrary to expectation, some firesetters disagreed with item 18, ‘I can stop a fire from getting too big’ (34.6%) and a larger proportion of non-firesetters rated the statement highly in agreement (60.6%). The direction of scores for this item are reflected in the negative value for the internal consistency for the poor fire safety awareness subscale.

These findings suggest item 18 does not discriminate between firesetters and non-firesetters particularly well in the anticipated direction. Further validation work is required to better understand these findings. However, it may be that firesetters had a better understanding of their limitations when it comes to extinguishing fires due to their history of firesetting. Previous findings somewhat supported this assumption, as they showed that some adults with IDD attempted to extinguish a fire after having set it themselves (see Chapter 7).

As previously highlighted, our understanding of the association between the four fire-related factors and offending behaviour for adults with IDD is limited. The analysis of data was therefore conducted using both the original subscales (i.e., fire interest, identification with fire, and attitudes towards fire), as well as the subscales of the Four Factor Fire Scale (i.e., fire interest, fire as normal, identification with fire, and poor fire safety), and the total scores for each. Interestingly, the fire interest and identification with fire subscales of the AFAS did not discriminate firesetters from non-firesetters and may indicate that these fire-related factors are not as prominent in this population. Findings do suggest that attitudes towards fire, fire normalisation, and poor fire safety may be key factors to focus on during the assessment and treatment of this population and therefore require further exploration. The current study also provided some support for the use of items included in the Four Factor Fire Scale over the use of items included in the original measures. Except for the Poor Fire Safety subscale, the Four Factor Fire scale had better internal consistency, and overall better test-retest reliability when compared to the original measures. This is perhaps unsurprising given the Four Factor Fire Scale was developed and evaluated using factor analytic methods, whereby the four factors and their associated items were identified.

Participant and professional feedback was positive, indicating the AFAS was perceived by stakeholders as useful, relevant, and comprehensive. However, findings suggested the AFAS may not be suitable for all adults with IDD, and some adults may need additional contextual information and support before providing an informed response to all questionnaire items. Furthermore, feedback indicated the individual needs of service users should be considered when administering an assessment. Although the AFAS has been

adapted for use with adults with IDD, some additional guidance may prove beneficial to those completing the AFAS and for professionals offering support. It would be useful to collect additional data from professionals delivering the AFAS to service users and service-users themselves, exploring the individual items of the AFAS and the time it takes to administer. Additional information regarding questionnaire items and administration would help to ensure it is as useful as possible for professionals. Overall, the findings of Study 4 highlighted the need for more research to be conducted to develop and standardize adapted assessments for adults with IDD and increase our understanding of their characteristics and treatment needs.

Implications for Theory and Clinical Practice

Theoretical Implications

The findings of this research suggested current theoretical conceptualisations of firesetting require subtle changes to take account of several factors associated with the firesetting behaviour of adults with IDD. Micro-level theories of firesetting developed with imprisoned firesetters and firesetters with a mental disorder did not account for all factors associated with firesetting for adults with IDD. Therefore, the analysis of the offence chains of a sample of adults with IDD informed the development of a preliminary Firesetting Offence Chain for Adults with IDD. The development of micro-level theory is considered useful when developing multifactorial theories, therefore influencing our understanding of a particular phenomenon, and impacting assessment and treatment practices. Factors associated with adult firesetting for people with IDD were identified in Studies 1 and 2, which were not accounted for by multifactorial theories of firesetting. These findings suggested a modified theoretical framework was required to better represent firesetters with and without IDD. As discussed in Chapter 3, the M-TTAF (Gannon et al., 2012) is the most comprehensive theory of firesetting to date and has therefore been adapted to better represent the treatment needs of adults with IDD (see Figure 10.1).

Several subtle yet important adaptations have been made to the M-TTAF to develop a more inclusive theory of adult firesetting. Adaptations include the inclusion of additional factors under 'Caregiver Environment'. Gannon et al. (2012) identified several factors associated with caregiver environments but substance misuse amongst caregivers, poor mental health and an unstable caregiver environment had not been included in their model. These factors were identified in a review of evidence in Study 1 and in Study 2 during qualitative interviews with adults with IDD who set fires. The wider social environment for adults with IDD was also an important aspect of developmental context. Perhaps this was due, in part, to the periods adults with IDD spent in the social care system (i.e., foster placements). Related to the social environment were social exclusion (including bullying) and negative experiences of the educational system. Other factors relevant to developmental context included the occurrence of adverse events, including the death of a family member. As described by Gannon et al. (2012), developmental context is thought to lead to psychological vulnerabilities including Inappropriate Fire Interest/Scripts, Offence Supportive Attitudes, and Self-Emotional Regulation Issues.

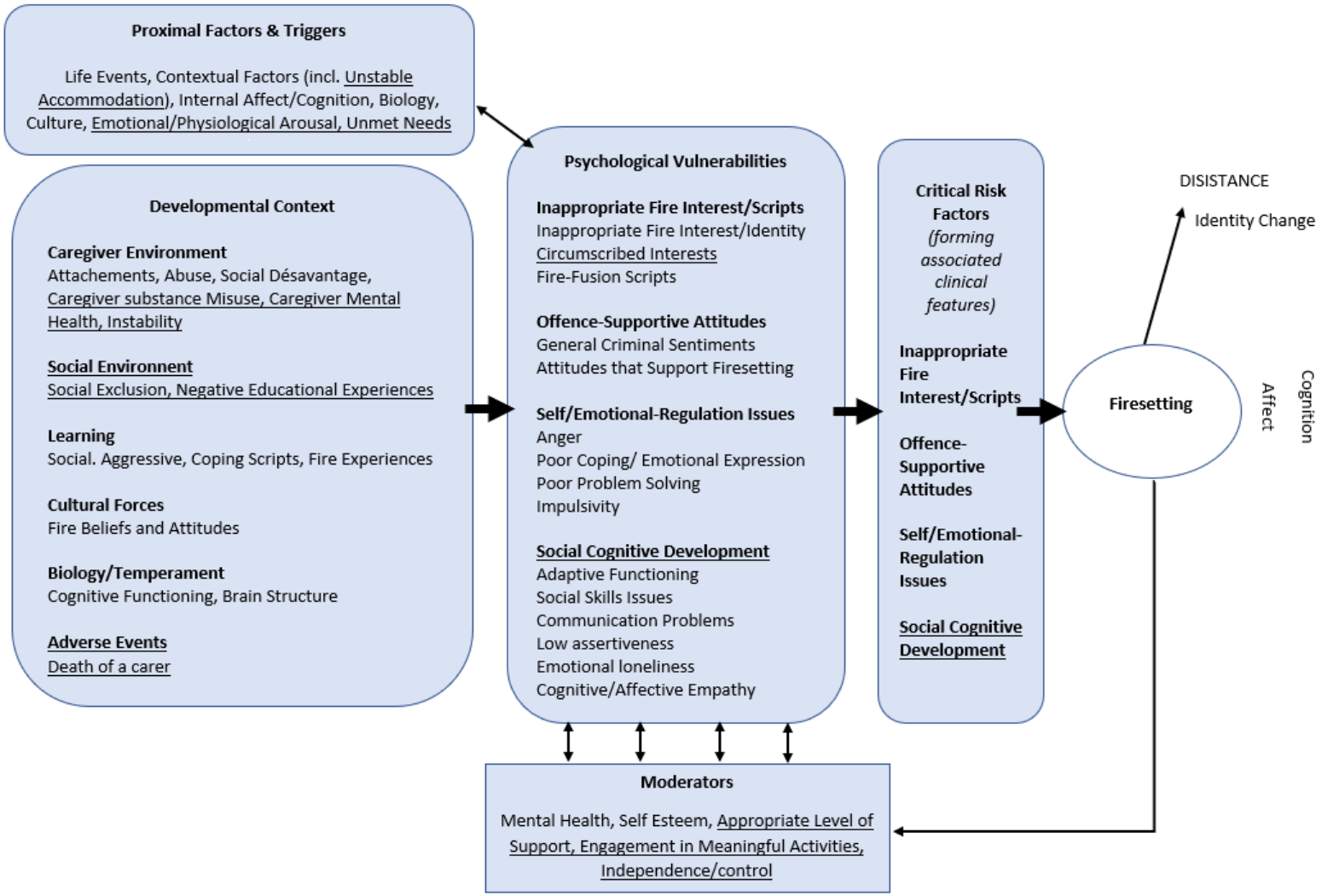
Although authors of the M-TTAF considered fire interest a psychological vulnerability, circumscribed interest had not previously been identified. Circumscribed interests were distinct from fire interest as they appeared to be broader and include fire paraphernalia, emergency services, or violence as described in Studies 1 and 2. Communication Problems are perceived as being distinct from Social Skills Issues and a feature of Social-Cognitive Development. The cognitive functioning of adults with IDD who set fires included in the current research varied, as did their social and communication skills. For example, the communication skills of adults with IDD were diverse and problems arose due to a range of factors, which included articulation difficulties, difficulties with reading, or memory deficits leading to difficulties comprehending information. Communication is therefore considered a feature of Social-Cognitive Development.

As identified by Gannon et al. (2012), the prominence of psychological vulnerabilities may be moderated by mental health and self-esteem. However, evidence from Studies 1

and 2 suggested several other moderators may be influential at this stage of the model, including cognitive and affective empathy, an appropriate level of support, engagement in meaningful activities, and independence/control. Furthermore, proximal factors and triggers not previously identified but relevant for adults with IDD included unstable accommodation, emotional/physiological arousal, and unmet needs. These factors explained how the psychological vulnerabilities outlined previously translated into key factors that interacted to facilitate firesetting.

Figure 10.1

The Multi-Trajectory Theory of Adult Firesetting Inclusive of Underlined Factors Relevant to Adults with IDD (Adapted from Gannon et al., 2012)



Implications for Assessment, Formulation, and Treatment

There was tentative evidence to suggest adults with IDD faced additional challenges compared to adults without IDD who set fires, which have implications for assessment, formulation, and treatment. This research highlighted the need to develop self-report measures specifically for adults with IDD who present with firesetting behaviour using samples of practitioners and adults with IDD. The needs of this group during an assessment may include additional visual material to aid understanding of the written text, structured response options, and flexibility in the time given to complete the assessment. Furthermore, the use of complex sentence structures and language, abstract concepts, and double negatives are unhelpful, impeding the ability to understand what is being asked and increasing the likelihood of an inaccurate and unreliable response (Kooijmans et al., 2021). Although further empirical evaluation in the form of a pilot study and future factor analytic work is required, findings of the research suggest the Adapted Firesetting Assessment Scale is a resource that may be used to inform future research, assessment, treatment, and care planning for this group of adults who set fires. The preliminary evaluation of the AFAS provided some evidence regarding the reliability and validity of the scale. Feedback from professionals and participants suggested that items of the AFAS were comprehensible, relevant, comprehensive, and a valuable resource they could utilize in practice. Although further improvements were required including the need for additional guidance and contextual information for some items, which could be developed to support professionals in the administration of the AFAS. The findings also suggested the measure had internal consistency and test-rest reliability. Findings offered some evidence that factors identified in research with adults without IDD are also important during the assessment and treatment of adults with IDD, including the focus on attitudes towards fire, cognitions pertaining to firesetting being normal and fire safety awareness. However, other factors might be less relevant for this population, including identification with fire.

The additional characteristics identified in the research have several implications for formulation. Findings of Study 2 suggested that fire-related factors were associated with

firesetting behaviour for adults with IDD. However, other factors were also influential and related to the vulnerabilities associated with having IDD. Factors included a desire to increase emotional/physiological arousal, whereby some adults with IDD who set fires were motivated by a desire for sensory stimulation or excitement. Hyposensitivity is a core feature of autism (Klintwall et al., 2011), which may have been a contributing factor. Similar to the outcomes of research with adults without IDD, findings suggested adults with IDD were motivated by revenge. However, the intentions of adults with IDD were not related to a desire to hurt or kill a person, but rather a means of expressing their emotions. Adults with IDD often have difficulties with communication (e.g., Volden, 2004). Consistent with learning theories of firesetting, and Jackson et al's (1987) model of firesetting using a functional analysis framework, findings suggested the act of setting a fire functioned as a means of gaining more support from professionals and caused an external change, for example a change in accommodation. The firesetting behaviour for adults with IDD was arguably being reinforced through the implementation of increased supervision and a move to an often more secure environment. Furthermore, negative social and caregiver environments during childhood characterised by instability, abuse, social exclusion, and absent caregivers contributed towards attachment styles that were not secure in adulthood leading to unhealthy and problematic relationships resulting in conflict, which was a trigger for firesetting behaviour.

The findings of Study 1 suggested there were a lack of treatment programmes available for adults with IDD who set fires, with none having been sufficiently evaluated using randomised control trials. This limited the evidence base on the effectiveness of interventions when used with adults with IDD who set fires. Considering the additional challenges faced by this population, caution should be exercised when adapting programmes developed for other types of offenders. Existing interventions that target firesetting behaviour include the Firesetting Intervention Programme for Prisoners (FIPP; Gannon et al., 2012), Firesetting Intervention Programme for Mentally Disordered Offenders (FIP-MO; Gannon & Lockerbie, 2014), a cognitive-behavioural group-based intervention

(Taylor et al., 2002) and an adapted version of the Fire Awareness Child Education UP (Broadhurst, 1991). However, current programmes are based on theory (e.g., Functional Analysis Theory: Jackson et al., 1987; Dynamic-Behaviour Theory: Fineman, 1980, 1995; Multi-Trajectory Theory of Adult Firesetting: Gannon et al., 2012) and research that has not been validated with samples of adults with IDD. The Firesetting Intervention Programme for Mentally Disordered Offenders (FIP-MO; Gannon & Lockerbie, 2014), has shown promising results (Tyler et al., 2018), but further validation is needed. This research suggested adults with IDD may have different characteristics and offence specific treatment needs which should be considered when conducting assessments and offering interventions to this group. Treatment should be multifaceted, thereby including components that focus on fire related factors as well as other factors prominent for adults with IDD that are associated with firesetting behaviour. For example, social exclusion should be addressed within treatment by developing the social skills of adults with IDD who have set a fire and by supporting adults to identify the links between their problematic or absent interpersonal relationships, their support systems, and their firesetting behaviour. In addition, greater social inclusion should be encouraged at a systemic level, whereby adults with IDD volunteer and participate in other meaningful group activities. This could be facilitated through the adoption of multisystemic therapy, which is an intervention currently delivered to teenagers who have a history of offending behaviour. Factors are identified across the systems (e.g., home, education, community) that perpetuate the problem and interventions are developed to reduce their impact (Ashmore & Fox, 2011). Relapse prevention work should look to identify and highlight appropriate support system for individuals to prevent future recidivism. Furthermore, treatment should include work to increase a person's engagement in activities that are meaningful to them, whereby adults with IDD are encouraged and supported to live in the least restrictive environment and be as independent as possible. Treatment should look to support adults with IDD who set fires to identify personal goals, which should be reviewed regularly, and engagement in meaningful activities should be encouraged within relapse prevention work. Moreover, evidence has suggested that some adults with IDD who

set fires have experienced trauma, violence or other suffering throughout their lives, including abuse. Therefore, any treatment should take a trauma informed approach, whereby the ongoing impact of trauma on physical, psychological, and social well-being are considered (Keesler, 2014). Interventions for adults with IDD therefore need to be broad, person-centred, and delivered by a range of professionals across a multi-disciplinary team.

Overall Strengths and Limitations

A key strength of the current research was that the views and experiences of adults with IDD, as well as professionals working with adults with IDD were actively sought, considered, and valued. Adhering to recent recommendations outlined by Kooijmans et al. (2021) adults with IDD were consulted when developing and amending assessment scale items in Study 3. An opportunity to provide feedback and comment on the AFAS was further encouraged in Study 4. Furthermore, efforts were made to recruit participants with a range of experiences from across inpatient and community services for all studies. Different data collection methods were used to encourage the involvement of adults with IDD within the research. A combination of qualitative and quantitative data using semi-structured interviews, a focus group and closed questions were utilised.

Limitations across all four studies are presented, which warrant consideration. One such potential limitation was the recruitment of both autistic adults and adults with ID across studies, whereby people with ID and autistic people were treated as one homogeneous group. Factors prominent for these different populations may not have been identified because they were combined. However, both autism and ID come under the broader category of neurodevelopmental disabilities. Arguably, ID is the most common co-occurring disorder with autism, and a strong predictor of poor prognosis (Matson & Shoemaker, 2009). Due to a high prevalence of ID amongst autistic adults (e.g., Matson et al., 1996, Wilkins and Matson, 2009), it was important to not exclude individuals from the current research. Nevertheless, further research should look to explore the similarities and differences between these populations.

The findings of the current research are also limited, as the sample sizes are small. In part, this was due to the circumstances of the COVID-19 pandemic, which prohibited further data collection and does pose problems to the generalisability of the findings. In addition to other limitations, the implications of having recruited a small sample are addressed, where relevant, for individual studies below.

Strengths and Limitations of Study 1

The findings of Study 1 were limited by the poor methodological quality of previous research. All studies that were identified as meeting the eligibility criteria were included in the review despite their quality; this decision was made due to a lack of completed controlled trials. Although efforts were made to source all relevant articles, seven publications thought to be relevant were not reviewed because they could not be sourced. Despite searching the grey literature, most papers included were from peer-reviewed journals. The inclusion of peer-reviewed journal articles increased the methodological quality of studies included. However, it may have led to publication bias with only positive results being reported within the literature. Further, filters applied during initial searches were likely to bias research findings, including the language of included articles. Studies in other countries may have been conducted but could not be reviewed as they were not written in English. This may have contributed to the underrepresentation of research conducted in non-English speaking countries. Nevertheless, the findings of the systematic review did provide a comprehensive overview of evidence pertaining to adults with IDD who have set a fire.

A strength associated with Study 1 is that attempts were made to source all known research, whereby authors had included an adult with IDD within their sample. Focusing the review on adults with IDD allowed for similarities and differences between adults with IDD and those without IDD to be highlighted (e.g., the difference in offending history, motivations for setting a fire). In addition, the quality appraisal of the included studies allowed for an objective evaluation of methodological rigour within and across studies and encouraged researchers to identify potential bias within the data. Further, the inclusion of both qualitative

and quantitative literature led to a more comprehensive and representative understanding of adults with IDD who set fires.

Strengths and Limitations of Study 2

For Study 2, the sample of 13 adults with IDD did pose problems to the generalisability of research findings. Although, the sample size for Study 2 represented 2.5% of all adults detained in hospitals under Part III of the Mental Health Act (1983, as amended in 2007) across England and Wales with a conviction for Arson (n = 525; Ministry of Justice, 2020) and was larger than the estimated prevalence rates of firesetting in adults with ID within this population (0.4 – 1.4%; Devapriam et al., 2007; Richie & Huff, 1999). Whilst the sample size was larger than some existing samples used to develop other grounded theory offence chain models in the field of offending behaviour (e.g., Courtney et al., 2006; Wakeling et al., 2007), the findings were not intended to generalise to all adults with IDD who set fires but to represent the offence chains of the sample studied. A core strength of grounded theory methodology is its ability for future modification in response to additional data and as a result, the preliminary conclusions drawn from this study should be applied cautiously until replicated with larger samples and different populations (e.g., females, autistic adults without ID).

A further limitation is that the identification of eligible participants for Study 2, which relied on case file information and previous assessments of Full-Scale IQ, mental health diagnosis, and offending history. This may have biased findings, as those adults with more severe IDD or a more extensive history of firesetting may have been more likely to have been identified by professionals as eligible to participate in the research. Future research should look to collect data on diagnosis and IQ through the independent administration of diagnostic instruments.

Furthermore, methodologies used to collect data for Study 2 (i.e., semi-structured interviews) relied on self-report and memory recall of events. While evidence has suggested that open-ended questions can be used with adults with ID with moderate confidence when

asking for retrieval of information (Kooijams et al., 2021). Furthermore, during the analysis stage, excellent inter-rater reliability was established using a second rater that was not independent, which may have introduced some degree of bias in the interpretation of research findings.

Strengths and Limitations of Study 3

For Study 3, experts were recruited from a range of inpatient and community services and encouraged to share the invitation to participate in the research with relevant colleagues. However, it is likely the invitation to participate did not reach all eligible practitioners, and a stronger drive using alternative methods (e.g., emails to additional online lists of registered practitioners such as JISC-ID, a national academic mailing list service) may have increased the sample size. A small sample of three adults with IDD, considered to be the minimum group size for a focus group (Edmunds, 1999) could be construed as problematic. The recruitment of participants who were able to take part in the study online proved challenging as the study was conducted during the COVID-19 lockdown restrictions in England (2020-2021). However, running a focus group with three people may have allowed participants a greater opportunity to engage with the material and make valued contributions. Taking part in a larger focus group may have placed greater demands upon individuals. Nevertheless, the generalisability of the findings from Study 3 were limited, and further views from people with IDD should be captured in further validation work. This study provided a sound basis for researchers and practitioners on which to base further research and incorporate future developments in the field.

Alongside this, it is important to acknowledge that the validity of the assessment of factors associated with deliberate firesetting, could be improved using alternative methods to support the assessment that are less reliant on accurate self-reported recall of thoughts, feelings, and behaviours. Such examples include visiting a fire station (Clare et al., 1992), the use of virtual reality technology, videos, measures of heart rate, and blood pressure. Alternative methods of assessment have been used in other areas of offending behaviour

(e.g., sexual offending; Boardman & Bartels, 2018; Trottier et al., 2019; Koegl et al., 2018) and research into the assessment of firesetting is still in its infancy. Although consideration should be given to the disadvantages of using physiological measures, which are difficult to interpret, and the ethical implications of using virtual reality technology (e.g., its validity, cost, physical discomfort, psychological and emotional side effects, and data security; Cornet & Van Gelder, 2020).

Strengths and Limitations of Study 4

Similar to Study 3, the assessment of eligibility for adults with IDD in Study 4 relied on self-report and case file review to determine a history of firesetting and the results of previous assessments. The full-scale IQ score, mental health diagnosis and offending history was obtained from service-users or their records and not collected through independent administration of the diagnostic assessment. This study was also conducted during the global pandemic between 2020 and 2021 when many services in the UK were in lockdown. Therefore, the findings were limited by a small sample size, which did not represent all adults with IDD who set fires.

Nevertheless, Study 4 included the collection of feedback from professionals and adults with IDD that can be used to guide further scale developments. The findings of Study 4 are preliminary and a further pilot study with a larger sample size of adults with IDD from the community and inpatient services, inclusive of those who have and have not got a history of offending behaviour (including firesetting) is required before the psychometric properties of the AFAS can be determined with confidence. This would include further research exploring the content validity of the AFAS using item response theory and conducting factor analytic work to determine the underlying dimensions of the scale. Further research to standardise the AFAS with a much larger and more diverse sample of adults with IDD is required.

Future Research Directions

As with other problematic behaviours (e.g., violence or sexual offending), offence process theories pertaining to adults with IDD who set fires, along with specialised assessments and interventions require further development. Future research is needed to better understand the clinical and forensic risk factors associated with firesetting for adults with IDD, inclusive of longitudinal studies, matched comparison groups and larger, more diverse samples of participants.

Future research would look to cross-validate the Firesetting Offence Chain for Adults with IDD using a larger sample, as not all adults with IDD are well represented in the current research (e.g., females). It would be useful to identify the different pathways that adults with IDD may take through the model to guide the development of specific treatment programs for different subtypes of firesetters (i.e., autistic adults and adults with intellectual disabilities). Further interviews could be conducted with adults in secure services and the community. These could be analysed using grounded theory and themes identified would inform future theory developments. A better understanding of the different pathways that adults may take through the model would provide a useful classification and highlight important differences between individuals, along with developing a better understanding of the treatment needs of this population. Quantitative data analysis could be used to explore potential pathways through the categories and sub-categories of the offence chain model.

Furthermore, more research needs to be conducted to develop and evaluate adapted measures for adults with IDD and increase our understanding of their characteristics and treatment needs. Specifically, a larger study to evaluate the psychometric properties of the AFAS should be conducted with a more representative sample. Qualitative feedback from Study 4 could be used to amend items of the AFAS. An amended version could then be administered to a much larger sample of adults with IDD. This sample should include adults with and without a history of firesetting in a range of settings, including the community, low, medium, and high secure inpatient services. This would include further research exploring the construct validity of the AFAS. A future study should be grounded in item response

theory or generalisability theory. Consideration should be given to the use of Rasch analysis to guide further development of the AFAS, whereby the psychometric properties of the scale are further explored, and response bias is accounted for (Bradley et al. 2015). Factor analytic work and principal components analysis could be undertaken to determine the underlying dimensions of the AFAS, whereby the correlations among variables could be explored and described (Tabachnik & Fidell, 2014).

The development of a scale to measure dynamic factors associated with adults with IDD who set fires could inform the development of future risk assessment tools. Risk assessments are used within clinical practice when formulating an adult's risk of recidivism. As highlighted in Study 1, research focused on understanding the prevalence of recidivism is sparse. Therefore, further research is required to better understand whether dynamic fire-related factors can predict reoffending for adults with IDD.

Conclusion

Despite evidence that suggests adults with IDD set deliberate fires, which have a high economic cost and devasting consequences for humans and society in the UK, research, and theoretical conceptualisations of firesetting behaviour focusing on adults with IDD has been lacking. This thesis represents research conducted to provide a comprehensive review of the evidence on adults with IDD who set fires and provide some preliminary evidence to inform our understanding of the offence processes of adults with IDD who set fires and develop an adapted assessment scale that can inform practice. Several novel findings emerged from the four empirical studies conducted in this thesis indicating there are important differences between adults with and without IDD who set fires, which warrant further exploration. Further empirical research is required to support current findings and to build on research to ensure the assessment and treatment of adults with IDD who set fires is evidence-based. It is hoped the current findings can inform assessment and treatment practices and provide a useful foundation for future research.

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Appendix A: Favourable Ethical Opinion

Health Research Authority
Social Care REC
Ground Floor
Skipton House
80 London Road
London
SE1 6LH

Please note: This is the favourable opinion of the REC only and does not allow you to start your study at NHS sites in England until you receive HRA Approval

21 June 2019

Miss Josephine Collins
6 Kings Cottages
Upper Street
Leeds, Maidstone
ME17 1SG

Dear Miss Collins

Study title:	**An investigation into the treatment needs of adults with intellectual and developmental disabilities who set fires: Evaluating current theory and practice in secure hospitals and community teams across England.**
REC reference:	**19/IEC08/0019**
Protocol number:	**N/A**
IRAS project ID:	**255255**

Thank you for your letter of 07 June 2019, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Vice-Chair.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to make a request to postpone publication, please contact hra.studyregistration@nhs.net outlining the reasons for your request.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Conditions of the favourable opinion

The REC favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements. Each NHS organisation must confirm through the signing of agreements and/or other documents that it has given permission for the research to proceed (except where explicitly specified otherwise).

Guidance on applying for HRA and HCRW Approval (England and Wales)/ NHS permission for research is available in the Integrated Research Application System, at www.hra.nhs.uk or at http://www.rdforum.nhs.uk.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of management permissions from host organisations

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publically accessible database within 6 weeks of recruitment of the first participant (for medical device studies, within the timeline determined by the current registration and publication trees).

There is no requirement to separately notify the REC, but you should do so at the earliest opportunity e.g. when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non-clinical trials this is not currently mandatory.

If a sponsor wishes to request a deferral for study registration within the required timeframe, they should contact hra.studyregistration@nhs.net. The expectation is that all clinical trials will be registered, however, in exceptional circumstances non-registration may be permissible with prior agreement from the HRA. Guidance on where to register is provided on the HRA website.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Ethical review of research sites

NHS sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*	
Interview schedules or topic guides for participants [Study 3 Interview Schedule Patients]	Version 1.1	30 April 2019	
Interview schedules or topic guides for participants [Study 3 Interview Schedule Staff]	Version 1.1	30 April 2019	
Interview schedules or topic guides for participants [Background Information Questionnaire]	Version 1.1	30 April 2019	
Interview schedules or topic guides for participants [Study 1 Interview Schedule]	Version 1.1	30 April 2019	
IRAS Application Form [IRAS_Form_09052019]		09 May 2019	
Other [Employers Liability Insurance]	1.0	27 February 2019	
Other [Professional Indemnity Insurance]	1.0	27 February 2019	
Other [D-MAFF Theoretical Model]	1.0	22 November 2018	
Other [FOC-MD Theoretical Model]	1.0	22 November 2018	
Other [Easy-read debrief form study 1]	1.0	28 February 2019	
Other [D-MAF Model]	1.0	22 November 2018	
Other [Study 1 Debrief Form]	Version 1.1	30 April 2019	
Other [GDPR Study 1, 2b & 3]	Version 1.0	30 April 2019	
Other [GDPR Study 2a]	Version 1.0	30 April 2019	
Other [GDPR Study 2a & 3-Professionals]	Version 1.0	30 April 2019	
Other [Debrief Form- Study 2a]	Version 1.1	30 April 2019	
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Other [Debrief Form-Study 3]	Version 1.1	30 April 2019	
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Other [REC Feedback]	Version 1.0	03 May 2019	
Other [Lone Working Policy]	Version 1.0	04 May 2019	
Other [Study 1 Clinician Information Sheet]	1.1	24 May 2019	
Other [Clinician Information Sheet-Study 2a]	1.1	24 May 2019	
Other [Clinician Information Sheet-Study 2b]	1.1	24 May 2019	

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Other [REC Feedback]	1.1	02 June 2019	
Participant consent form [Consent Form-Community-Study 2a]	Version 1.0	30 April 2019	
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Participant consent form [Consent Form-Community]	1.1	02 June 2019	
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Participant consent form [Consent Form-Community-Study 2b]	1.1	02 June 2019	
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Participant consent form [Consent Form-Communiy-Study 3]	1.1	02 June 2019	
Participant consent form [Consent Form-Inpatient-Study 3]	1.1	02 June 2019	
Participant information sheet (PIS) [PIS-Community Study 2a]	Version 1.0	30 April 2019	
Participant information sheet (PIS) [PIS Community-Study 2b]	Version 1.0	30 April 2019	
Participant information sheet (PIS) [PIS Study 2a]	Version 1.1	30 April 2019	
Participant information sheet (PIS) [PIS-Study 3]	Version 1.1	30 April 2019	
Participant information sheet (PIS) [PIS STUDY 1-COMMUNITY]	1.1	02 June 2019	
Participant information sheet (PIS) [PIS-Inpatient]	1.1	02 June 2019	
Participant information sheet (PIS) [EASY READ PIS-INPATIENT-STUDY 2a]	1.1	24 May 2019	
Participant information sheet (PIS) [PIS Community-Study 2b]	1.1	02 June 2019	
Participant information sheet (PIS) [EASY READ PIS INPATIENT STUDY 2b]	1.1	02 June 2019	
Participant information sheet (PIS) [PIS-Community-Study 3]	1.1	02 June 2019	
Participant information sheet (PIS) [PIS-Inpatient-Study 3]	1.1	02 June 2019	
Research protocol or project proposal [Research Protocol V 1.0]	1.2	24 May 2019	
Summary CV for Chief Investigator (CI) [Chief Investigator CV]	Version 1.0	04 March 2019	
Summary CV for student [CV-student]	1.0	28 February 2019	
Summary CV for supervisor (student research) [Peter Langdon CV]		28 February 2019	

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document *"After ethical review – guidance for researchers"* gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The HRA website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/

HRA Learning

We are pleased to welcome researchers and research staff to our HRA Learning Events and online learning opportunities– see details at: https://www.hra.nhs.uk/planning-and-improving-research/learning/

19/IEC08/0019	**Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project.

Yours sincerely

Ms Susan Harrison
Chair

Email: nrescommittee.social-care@nhs.net

Enclosures: After ethical review – guidance for researchers

Copy to: *Miss Nicole Palmer*

Appendix B: Health Research Authority Approval

Ymchwil Iechyd a Gofal Cymru
Health and Care Research Wales

NHS
Health Research Authority

Miss Josephine Collins
6 Kings Cottages
Upper Street
Leeds, Maidstone
ME17 1SG

26 June 2019

Dear Miss Collins

HRA and Health and Care Research Wales (HCRW) Approval Letter

Study title:	**An investigation into the treatment needs of adults with intellectual and developmental disabilities who set fires: Evaluating current theory and practice in secure hospitals and community teams across England.**
IRAS project ID:	**255255**
Protocol number:	**N/A**
REC reference:	**19/IEC08/0019**
Sponsor	**University of Kent**

I am pleased to confirm that HRA and Health and Care Research Wales (HCRW) Approval has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications received. You should not expect to receive anything further relating to this application.

Please now work with participating NHS organisations to confirm capacity and capability, in line with the instructions provided in the "Information to support study set up" section towards the end of this letter.

How should I work with participating NHS/HSC organisations in Northern Ireland and Scotland?
HRA and HCRW Approval does not apply to NHS/HSC organisations within Northern Ireland and Scotland.

If you indicated in your IRAS form that you do have participating organisations in either of these devolved administrations, the final document set and the study wide governance report (including this

letter) have been sent to the coordinating centre of each participating nation. The relevant national coordinating function/s will contact you as appropriate.

Please see IRAS Help for information on working with NHS/HSC organisations in Northern Ireland and Scotland.

How should I work with participating non-NHS organisations?
HRA and HCRW Approval does not apply to non-NHS organisations. You should work with your non-NHS organisations to obtain local agreement in accordance with their procedures.

What are my notification responsibilities during the study?

The document "*After Ethical Review – guidance for sponsors and investigators*", issued with your REC favourable opinion, gives detailed guidance on reporting expectations for studies, including:

- Registration of research
- Notifying amendments
- Notifying the end of the study

The HRA website also provides guidance on these topics, and is updated in the light of changes in reporting expectations or procedures.

Who should I contact for further information?
Please do not hesitate to contact me for assistance with this application. My contact details are below.

Your IRAS project ID is **255255**. Please quote this on all correspondence.

Yours sincerely,
Carolyn Halliwell

Approvals Specialist

Email: Ira.approval@nhs.net HCRW.approvals@wales.nhs.uk

Copy to: *Miss NicolePalmer*

List of Documents

The final document set assessed and approved by HRA and HCRW Approval is listed below.

Document	*Version*	*Date*
HRA Schedule of Events	2.0	22 May 2019
HRA Statement of Activities	2.0	22 May 2019
Interview schedules or topic guides for participants [Study 3 Interview Schedule Patients]	Version 1.1	30 April 2019
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Participant information sheet (PIS) [PIS-Community Study 2a]	Version 1.0	30 April 2019
Participant information sheet (PIS) [PIS Community-Study 2b]	Version 1.0	30 April 2019
Participant information sheet (PIS) [PIS Study 2a]	Version 1.1	30 April 2019
Participant information sheet (PIS) [PIS-Community-Study 3]	Version 1.0	30 April 2019
Participant information sheet (PIS) [PIS-Inpatient-Study 3]	Version 1.0	30 April 2019
Participant information sheet (PIS) [PIS-Study 3]	Version 1.1	30 April 2019
Participant information sheet (PIS) [PIS STUDY 1-COMMUNITY]	1.1	02 June 2019
Participant information sheet (PIS) [PIS-Inpatient]	1.1	02 June 2019
Participant information sheet (PIS) [EASY READ PIS-INPATIENT-STUDY 2a]	1.1	24 May 2019
Participant information sheet (PIS) [PIS Community-Study 2b]	1.1	02 June 2019
Participant information sheet (PIS) [EASY READ PIS INPATIENT STUDY 2b]	1.1	02 June 2019
Participant information sheet (PIS) [PIS-Community-Study 3]	1.1	02 June 2019
Participant information sheet (PIS) [PIS-Inpatient-Study 3]	1.1	02 June 2019
Research protocol or project proposal [Research Protocol V 1.0]	Version 1.1	04 May 2019
Research protocol or project proposal [Research Protocol V 1.0]	1.2	24 May 2019
Summary CV for Chief Investigator (CI) [Chief Investigator CV]	Version 1.0	04 March 2019
Summary CV for student [CV-student]	1.0	28 February 2019
Summary CV for supervisor (student research) [Peter Langdon CV]		28 February 2019

Appendix C: Non-Substantial Amendments

IRAS PROJECT ID 255255, REC Reference 19/IEC08/0019 : Amendment acknowledgement and implementation information

DELETE REPLY REPLY ALL FORWARD

nrescommittee.social-care@nhs.net <noreply@harp.org.uk> Mark as unread

Thu 08/08/2019 18:30

To: J.Collins; Magali Barnoux; Nicole Palmer;

New Site Amendment, Implementation Information

Dear Miss Collins

IRAS Project ID:	255255
Short Study Title:	Adults with intellectual & developmental disabilities who set fires.
Date complete amendment submission received:	25 July 2019
Sponsor Amendment Reference Number:	1
Sponsor Amendment Date:	22 July 2019
Amendment Type:	Non-substantial
For new sites in Northern Ireland and/or Scotland:	Please start to set up your new sites. Sites may not open until NHS management permission is in place.
For new sites in England and/or Wales:	**This email also constitutes HRA and HCRW Approval for the amendment, and you should not expect anything further.** Please start to set up your new sites. Sites may not open until the site has confirmed capacity and capability (where applicable).

Thank you for submitting an amendment to add one or more new sites to your project. This amendment relates solely to the addition of **new sites**.

What should I do next?

Please set up the new site(s) as per the guidance found within IRAS. **Please note** that processes change from time to time so please use the most up to date guidance about site set up.

If your study is supported by a research network, please contact the network as early as possible to help support set up of the new site(s).

If you have listed new sites in any other UK nations we will forward the information to the national coordinating function(s) for nations where the new site(s) are being added. In Northern Ireland and Scotland, NHS/HSC R&D offices will be informed by the national coordinating function.

IRAS PROJECT ID 255255, REC Reference 19/IEC08/0019 : Amendment acknowledgement and implementation information

DELETE REPLY REPLY ALL FORWARD ...

nrescommittee.social-care@nhs.net <noreply@harp.org.u Mark as unread

Tue 27/08/2019 14:52

To: J.Collins; Magali Barnoux; Nicole Palmer;

New Site Amendment, Implementation Information

Dear Miss Collins

IRAS Project ID:	255255
Short Study Title:	Adults with intellectual & developmental disabilities who set fires.
Date complete amendment submission received:	15 August 2019
Sponsor Amendment Reference Number:	2
Sponsor Amendment Date:	13 August 2019
Amendment Type:	Non-substantial
For new sites in Northern Ireland and/or Scotland:	Please start to set up your new sites. Sites may not open until NHS management permission is in place.
For new sites in England and/or Wales:	**This email also constitutes HRA and HCRW Approval for the amendment, and you should not expect anything further**. Please start to set up your new sites. Sites may not open until the site has confirmed capacity and capability (where applicable).

19/IEC08/0019/AM04 - IRAS 255255. Amendment categorisation and implementation information

nrescommittee.social-care@nhs.net <noreply@harp.org.uk>

Thu 17/10/2019 09:38

To:J.Collins <jc2009@kent.ac.uk>; Magali Barnoux <M.Barnoux@kent.ac.uk>; Nicole Palmer <N.R.Palmer@kent.ac.uk>;

Amendment Categorisation and Implementation Information

Dear Miss Collins,

IRAS Project ID:	255255
Short Study Title:	Adults with intellectual & developmental disabilities who set fires.
Date complete amendment submission received:	23 August 2019
Amendment No./ Sponsor Ref:	3
Amendment Date:	13 August 2019
Amendment Type:	Non-substantial
Outcome of HRA and HCRW Assessment	**This email also constitutes HRA and HCRW Approval for the amendment**, and you should not expect anything further.
Implementation date in NHS organisations in England and/or Wales	35 days from date amendment information together with this email, is supplied to participating organisations **(providing conditions are met).**
For NHS/HSC R&D Office Information	
Amendment Category	B

Thank you for submitting an amendment to your project. We have now categorised your amendment and please find this, as well as other relevant information, in the table above.

What should I do next?

Please read the information in IRAS, which provides you with information on how and when you can implement your amendment at NHS/HSC sites in each nation, and what actions you should take now.

If you have participating NHS/HSC organisations in any other UK nations please note that **we will** forward the amendment submission to the relevant national coordinating function(s).

If not already provided, please email to us any regulatory approvals (where applicable) once available.

When can I implement this amendment?

You may implement this amendment in line with the information in IRAS. Please note that you may only implement changes described in the amendment notice.

Who should I contact if I have further questions about this amendment?

If you have any questions about this amendment please contact the relevant national coordinating centre for advice:

- England – hra.amendments@nhs.net
- Northern Ireland – research.gateway@hscni.net
- Scotland – nhsg.NRSPCC@nhs.net
- Wales – HCRW.amendments@wales.nhs.uk

Additional information on the management of amendments can be found in the IRAS guidance.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/.

Please do not hesitate to contact me if you require further information.

Kind regards

Danielle Bromage
Health Research Authority
Ground Floor | Skipton House | 80 London Road | London | SE1 6LH
E hra.amendments@nhs.net
W. www.hra.nhs.uk

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IRAS 255255. Amendment categorisation and implementation information

DELETE REPLY REPLY ALL FORWARD ...

nrescommittee.social-care@nhs.net <noreply@harp.org.u Mark as unread

Tue 01/10/2019 16:04

To: ☐ J.Collins; ☐ Magali Barnoux; ☐ Nicole Palmer;

Amendment Categorisation and Implementation Information

Dear Miss Collins,

IRAS Project ID:	255255
Short Study Title:	Adults with intellectual & developmental disabilities who set fires.
Date complete amendment submission received:	04 September 2019
Amendment No./ Sponsor Ref:	4
Amendment Date:	03 September 2019
Amendment Type:	Non-substantial
Outcome of HRA and HCRW Assessment	**This email also constitutes HRA and HCRW Approval for the amendment,** and you should not expect anything further.
For NHS/HSC R&D Office information	
Amendment Category	C

Thank you for submitting an amendment to your project. We have now categorised your amendment and please find this, as well as other relevant information, in the table above.

What should I do next?

If you have participating NHS/HSC organisations in any other UK nations that are affected by this amendment **we will** forward the information to the relevant national coordinating function (s).

You should now inform participating NHS/HSC organisations of the amendment.

- For NHS organisations in England and/or Wales, this notification should include the NHS R&D Office, LCRN (where applicable) as well as the local research team.

When can I implement this amendment?

19/IEC08/0019/AM05 , IRAS Project ID: 255255 Amendment acknowledgement and implementation information

SOCIAL-CARE, Nrescommittee (HEALTH RESEARCH AUTHORITY) <nrescommittee.social-care@nhs.net>

To: J.Collins <jc2009@kent.ac.uk>; Magali Barnoux <M.Barnoux@kent.ac.uk>; Nicole Palmer <N.R.Palmer@kent.ac.uk>

New Site Amendment, Implementation Information

Dear Miss Collins

IRAS Project ID:	255255
Short Study Title:	Adults with intellectual & developmental disabilities who set fires.
Date complete amendment submission received:	07 November 2019
Sponsor Amendment Reference Number:	5
Sponsor Amendment Date:	30 October 2019
Amendment Type:	Non-substantial
For new sites in Northern Ireland and/or Scotland:	Please start to set up your new sites. Sites may not open until NHS management permission is in place.
For new sites in England and/or Wales:	For studies which already have HRA and HCRW Approval: **This email also constitutes HRA and HCRW Approval for the amendment, and you should not expect anything further.** Please start to set up your new sites. Sites may not open until the site has confirmed capacity and capability (where applicable).

Thank you for submitting an amendment to add one or more new sites to your project. This amendment relates solely to the addition of **new sites**.

What should I do next?

Please set up the new site(s) as per the guidance found within IRAS. **Please note** that processes change from time to time so please use the most up to date guidance about site set up.

If your study is supported by a research network, please contact the network as early as possible to help support set up of the new site(s).

If you have listed new sites in any other UK nations **we will** forward the information to the national coordinating function(s) for nations where the new site(s) are being added. In Northern Ireland and Scotland, NHS/HSC R&D offices will be informed by the national coordinating function.

Note: you may only implement changes described in the amendment notice.

Who should I contact if I have further questions about this amendment?

If you have any questions about this amendment please contact the relevant national coordinating centre for advice:

- England – hra.amendments@nhs.net
- Northern Ireland – research.gateway@hscni.net
- Scotland – nhsg.NRSPCC@nhs.net
- Wales – HCRW.amendments@wales.nhs.uk

Additional information on the management of amendments can be found in the IRAS guidance.

User Feedback

We are continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the amendment procedure. If you wish to make your views known please use the feedback form available at: http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/.

Please do not hesitate to contact me if you require further information.

Kind regards

Danielle Bromage
Health Research Authority
Ground Floor | Skipton House | 80 London Road | London | SE1 6LH
E. hra.amendments@nhs.net
W. www.hra.nhs.uk

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IRAS 255255. Amendment categorisation and implementation information

social.care.rec@hra.nhs.uk <noreply@harp.org.uk>
Fri 29/05/2020 12:12
To: J.Collins <jc2009@kent.ac.uk>; Magali Barnoux <M.Barnoux@kent.ac.uk>; Nicole Palmer <N.R.Palmer@kent.ac.uk>

Amendment Categorisation and Implementation Information

Dear Miss Collins,

IRAS Project ID:	255255
Short Study Title:	Adults with intellectual & developmental disabilities who set fires.
Date complete amendment submission received:	21/04/2020
Amendment No./ Sponsor Ref:	NSA 6
Amendment Date:	21 April 2020
Amendment Type:	Non-substantial
Outcome of HRA and HCRW Assessment	**This email also constitutes HRA and HCRW Approval for the amendment,** and you should not expect anything further.
For NHS/HSC R&D Office information	
Amendment Category	**C**

Thank you for submitting an amendment to your project. We have now categorised your amendment and please find this, as well as other relevant information, in the table above.

What should I do next?

If you have participating NHS/HSC organisations in any other UK nations that are affected by this amendment **we will** forward the information to the relevant national coordinating function(s).

You should now inform participating NHS/HSC organisations of the amendment,

- For NHS organisations in England and/or Wales, this notification should include the NHS R&D Office, LCRN (where applicable) as well as the local research team,

When can I implement this amendment?

You may implement this amendment **immediately**. Please note that you may only implement changes described in the amendment notice.

Who should I contact if I have further questions about this amendment?

If you have any questions about this amendment please contact the relevant national coordinating centre for advice:

- England – amendments@hra.nhs.uk
- Northern Ireland – research.gateway@hscni.net
- Scotland – nhsg.NRSPCC@nhs.net
- Wales – HCRW.amendments@wales.nhs.uk

Additional information on the management of amendments can be found in the IRAS guidance.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/.

Please do not hesitate to contact me if you require further information.

Kind regards

Henrietta Phillips
Health Research Authority
Ground Floor | Skipton House | 80 London Road | London | SE1 6LH
E. amendments@hra.nhs.uk
W. www.hra.nhs.uk

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S

socialcare.rec@hra.nhs.uk <noreply@harp.org.uk>

Thu 30/04/2020 06:32

J.Collins; Magali Barnoux; Nicole Palmer

Amendment Categorisation and Implementation Information

Dear Miss Collins,

IRAS Project ID:	255255
Short Study Title:	Adults with intellectual & developmental disabilities who set fires.
Date complete amendment submission received:	21/04/2020
Amendment No./ Sponsor Ref:	NSA 7
Amendment Date:	21 April 2020
Amendment Type:	Non-substantial
Outcome of HRA and HCRW Assessment	**This email also constitutes HRA and HCRW Approval for the amendment,** and you should not expect anything further.
For NHS/HSC R&D Office information	
Amendment Category	**C**

Thank you for submitting an amendment to your project. We have now categorised your amendment and please find this, as well as other relevant information, in the table above.

What should I do next?

If you have participating NHS/HSC organisations in any other UK nations that are affected by this amendment **we will** forward the information to the relevant national coordinating function(s).

You should now inform participating NHS/HSC organisations of the amendment. For NHS organisations in England and/or Wales, this notification should include the NHS R&D Office, LCRN (where applicable) as well as the local research team

IRAS 255255. Amendment

New IRAS Dev <no-reply-iras@hra.nhs.uk>
Tue 29/12/2020 09:17
To: Josephine Collins <jc2009@kent.ac.uk>

IRAS Project ID: 255255
Sponsor amendment reference: Amendment 8

Thank you for submitting your study amendment. In accordance with the outcome of your completed amendment tool, this amendment requires no further regulatory review. Please now share this amendment with your UK research sites, in accordance with the instructions in your completed amendment tool.

For studies with more than one UK research site, your amendment will now be automatically shared with the R&D offices of any NHS/HSC research sites in Scotland and Northern Ireland, but you should share the amendment by email directly with those Research team/s.

For all NHS research sites in England and Wales, please now share this amendment by email directly with those sites, including both the R&D offices and research teams.

Do not reply to this email as this is an unmonitored address and replies to this email cannot be responded to or read.

Appendix D: Substantial Amendment

NHS
Health Research Authority

Social Care REC
Ground Floor
Skipton House
80 London Road
London
SE1 6LH

Tel: 0207 104 8018

23 February 2021

Miss Josephine Collins
6 Kings Cottages
Upper Street
Leeds, Maidstone
ME17 1SG

Dear Miss Collins,

Study title:	**An investigation into the treatment needs of adults with intellectual and developmental disabilities who set fires: Evaluating current theory and practice in secure hospitals and community teams across England.**
REC reference:	**19/IEC08/0019**
Amendment number:	**Amendment 9**
Amendment date:	**20 January 2021**
IRAS project ID:	**255255**

The above amendment was reviewed by the Sub-Committee in correspondence.

Ethical opinion

The members of the Committee taking part in the review gave a **favourable ethical opinion** of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

Document	*Version*	*Date*
Completed Amendment Tool [Amendment 9]	1	20 January 2021
Research protocol or project proposal [Protocol]	1.3	22 January 2021
Research protocol or project proposal [Protocol]	1.3 Tracked Changes	22 January 2021

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

Working with NHS Care Organisations

Sponsors should ensure that they notify the R&D office for the relevant NHS care organisation of this amendment in line with the terms detailed in the categorisation email issued by the lead nation for the study.

Amendments related to COVID-19

We will update your research summary for the above study on the research summaries section of our website. During this public health emergency, it is vital that everyone can promptly identify all relevant research related to COVID-19 that is taking place globally. If you have not already done so, please register your study on a public registry as soon as possible and provide the HRA with the registration detail, which will be posted alongside other information relating to your project.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

HRA Learning

We are pleased to welcome researchers and research staff to our HRA Learning Events and online learning opportunities– see details at: https://www.hra.nhs.uk/planning-and-improving-research/learning/

IRAS Project ID - 255255:	**Please quote this number on all correspondence**

Yours sincerely
pp

Dr Martin Stevens
Chair

E-mail: socialcare.rec@hra.nhs.uk

Social Care REC

Attendance at Sub-Committee of the REC meeting in correspondence

Committee Members:

Name	*Profession*	*Present*
Ms Sandra Eismann	Senior NHS Manager	Yes
Dr Martin Stevens (Chair)	Senior Research Fellow	Yes

Also in attendance:

Name	*Position (or reason for attending)*
Jane Harker	Approvals Administrator

Appendix E: Study two participant information sheet and consent form (Community)

Information Sheet-Community

Study Title: Adults with intellectual and developmental disabilities who set fires.

Study 1

You are being asked to take part in research.

You can talk to others about this research study. This can be anyone you like.

Please ask if there is anything that you do not understand.

Who are the Researchers?


Josephine Collins


Josephine is supervised by Dr Magali Barnoux


and Professor Peter Langdon

We are from the Tizard Centre at the University of Kent.

What do we want to find out?

- We would like to find out more about adults who have set a fire.
- We would like to find out about people with Learning Disabilities and Autism Spectrum Disorder.
- We would like to find out what people are thinking before they set a fire.

- We would like to find out how people feel before they set a fire.
- We would like to find out how people behave when setting a fire.
- We would like to find out how people who set fires are like each other.
- We would like to find out how people who set fires are different to each other.
- We think this might help us to understand if people who have learning disabilities and autistic spectrum disorders have different treatment needs.
- We think that this might help improve hospital and community care for adults who set fires.

Do I have to take part in this research?

- NO, you do not have to take part in this research.
- If you say YES, you can change it to NO later on.

What happens if I decide to take part and then change my mind?

- Your care and treatment will not be affected.
- You do not need to give a reason.
- The researchers will not contact you again about the study.
- Any information already collected will be destroyed.
- No more information will be collected from you.

What happens if I say yes?

- The researcher will ask to meet with you.
- You will be asked some general questions about yourself-like how old you are.
- You will be asked some questions about your background and the events that led to your offence.
- We would like to speak to your doctor to check your personal details, like your date of birth, to make sure it is right.
- This should take 1 hour.
- The meeting will be audio-recorded.
- You can ask to stop at any time.

Could bad things happen if I do the research?

- We do not think it likely that anything bad will happen.
- If anything is upsetting, we will talk to you and try to help you.

Could good things happen if I do the research?

- By saying yes, you will help us to understand more about people who set fires.
- You will help us understand if people with learning disabilities and autistic spectrum disorders need different treatment to other people.

Will information about me be kept private?

- Yes, the information we have will be kept private, but:

- People who are in charge of making sure that the researchers are following the rules may look at our records.
- We will tell your care team if we think you are going to hurt yourself or someone else.
- We will tell your care team if you talk to us about a crime you committed that you have never spoken about before.

What happens at the end?

- We will give you some more information about the study for you to keep.
- The results will be written about.
- If you would like, we can come and tell you the results.
- We may write the words you have said, but we will never include your name.

Has the research been checked?

- People have looked at the study to check it is safe.
- People have also checked to make sure that everyone gets good information before they start.
- The people who have checked this project are called an NHS Research Ethics Committee.

What if you are unhappy about the research?

- You can talk to the researchers first if you want.
- You can make a complaint to the University of Kent.
- We will give you information about how to complain.

- You can talk to your Psychiatrist.
- If you have support staff, you can talk to them.
- If you have a social worker or psychologist, you can talk to them too.
- You can talk to family or a friend.
- If you talk to someone about the research, it might be helpful to share this information sheet with them.

Who can I speak to if I want more information?

- If you want any extra information, have some further questions, or you wish to complain, you can call or write to:

Miss Josephine Collins
University of Kent, Tizard Centre
Cornwallis North East
Canterbury
Kent
CT2 7NZ

Her phone number is: 01227 824770
Her email address is: jc2009@kent.ac.uk

Or you can also contact:

Professor Peter Langdon: P.E.Langdon@kent.ac.uk

Dr Magali Barnoux: M.Barnoux@kent.ac.uk

Participant Consent Form-Community

University of Kent | Tizard Centre

Study 1: Adults with Intellectual and Developmental Disorders or who set fires.

Participant I.D. Number:

Please, initial the box if you agree with the sentence.

I understand the information sheet that was explained to me by Josephine Collins. ☐

I have been able to ask questions. ☐

I know that I can stop at any time. I do not need a reason for stopping. My care and treatment will not be affected. ☐

I understand that people from the NHS may check to make sure the researchers are following the rules. ☐

I am happy for the researchers to talk to my Doctor about me. ☐

I am happy for you to tell my care team I am taking part in the research study. ☐

I agree to take part in the study. ☐

Please tick if you would like a summary of the results. ☐

Your name	Date	Signature

Name of the person who helped you	Date	Signature

Participants to be given a copy of the completed consent form and a copy will be placed in their medical records.

The Chief Investigator: Dr Magali Barnoux, Tizard Centre, University of Kent, Cornwallis North East, Canterbury, CT2 7NZ.
Telephone: 01227 827560. Email: M.Barnoux@kent.ac.uk.

Appendix F: Study two participant information sheet and consent form (Inpatient)

Information Sheet-Inpatient

Study Title: Adults with intellectual and developmental disabilities who set fires.

Study 1

You are being asked to take part in research.

You can talk to others about this research study. This can be anyone you like.

Please ask if there is anything that you do not understand.

The Chief Investigator: Dr Magali Barnoux, Tizard Centre, University of Kent, Cornwallis North East, Canterbury, CT2 7NZ.
Telephone: 01227 827560. Email: M.Barnoux@kent.ac.uk

Who are the Researchers?


Josephine Collins


Josephine is supervised by Dr Magali Barnoux


and Professor Peter Langdon

We are from the Tizard Centre at the University of Kent.

What do we want to find out?

- We would like to find out more about adults who are in hospital because they have set a fire.
- We would like to find out about people with Learning Disabilities and Autism Spectrum Disorder.
- We would like to find out what people are thinking before they set a fire.
- We would like to find out how people feel before they set a fire.
- We would like to find out how people behave when setting a fire.
- We would like to find out how people who set fires are like each other.
- We would like to find out how people who set fires are different to each other.
- We think this might help us to understand if people who have learning disabilities and autistic spectrum disorders have different treatment needs.
- We think that this might help improve hospital care.

Do I have to take part in this research?

- NO, you do not have to take part in this research.
- If you say YES, you can change it to NO later on.

What happens if I decide to take part and then change my mind?

- Your care and treatment will not be affected.

- You do not need to give a reason.
- The researchers will not contact you again about the study.
- Any information already collected will be destroyed.
- No more information will be collected from you.

What happens if I say yes?

- The researcher will ask to meet with you.
- You will be asked some general questions about yourself-like how old you are.
- You will be asked some questions about your background and the events that led to your offence or hospital stay.
- We would like to speak to your doctor to check your personal details, like your date of birth, to make sure it is right.
- This should take 1 hour.
- The meeting will be audio-recorded.
- You can ask to stop at any time.

Could bad things happen if I do the research?

- We do not think it likely that anything bad will happen.
- If anything is upsetting, we will talk to you and try to help you.

Could good things happen if I do the research?

- By saying yes, you will help us to understand more about people who set fires.

- You will help us understand if people with learning disabilities and autistic spectrum disorders need different treatment to other people.

Will information about me be kept private?

- Yes, the information we have will be kept private, but:
    - People who are in charge of making sure that the researchers are following the rules may look at our records.
    - We will tell your care team if we think you are going to hurt yourself or someone else.
    - We will tell your care team if you tell us plans to escape.
    - We will tell your care team if you talk to us about a crime you committed that you have never spoken about before.

What happens at the end?

- We will give you some more information about the study for you to keep.
- The results will be written about.
- If you would like, we can come and tell you the results.
- We may write the words you have said, but we will never include your name.
- We may use the information you tell us in future studies.

- We will not use any information about you in future studies that would make you recognisable-like your name.

Has the research been checked?

- People have looked at the study to check it is safe.
- People have also checked to make sure that everyone gets good information before they start.
- The people who have checked this project are called an NHS Research Ethics Committee.

What if you are unhappy about the research?

- You can talk to the researchers first if you want.
- You can make a complaint to the University of Kent.
- We will give you information about how to complain.
- You can talk to ward staff.
- You can contact the Patient Advice Liaison Service (PALS). [SITE SPECIFIC COMPLAINTS CONTACT DETAILS TO BE INSERTED]

Who can I speak to if I want more information?

- If you want any extra information, have some further questions, or you wish to complain, you can call or write to:

Miss Josephine Collins
University of Kent, Tizard Centre
Cornwallis North East
Canterbury
Kent
CT2 7NZ

Her phone number is: 01227 824770
Her email address is: jc2009@kent.ac.uk

Or you can also contact:
Professor Peter Langdon
His email address is: P.E.Langdon@kent.ac.uk

Dr Magali Barnoux
Her email address is: M.Barnoux@kent.ac.uk

Participant Consent Form-Inpatient

Study 1: Adult with Intellectual and Developmental Disorders who set fires.

Participant I.D. Number:

Please, initial the box if you agree with the sentence.

I understand the information sheet that was explained to me by Josephine Collins. ☐

I have been able to ask questions. ☐

I know that I can stop at any time. I do not need a reason for stopping. My care and treatment will not be affected. ☐

I understand that people from the NHS may check to make sure the researchers are following the rules. ☐

I am happy for the researchers to talk to my Doctor about me. ☐

I am happy for you to tell my care team I am taking part in the research study. ☐

I agree to take part in the study. ☐

Please tick if you would like a summary of the results. ☐

Your name	Date	Signature
Name of the person who helped you	Date	Signature

Participants to be given a copy of the completed consent form and a copy will be placed in their medical records.

The Chief Investigator: Dr Magali Barnoux, Tizard Centre, University of Kent, Cornwallis North East, Canterbury, CT2 7NZ.
Telephone: 01227 827560. Email: M.Barnoux@kent.ac.uk.

Appendix G: Study two interview schedule

Study 1: Semi Structured Interview Schedule

I would like to ask you about the thoughts, feelings, and experiences that you have about firesetting. By "firesetting" I mean instances where you have started a fire, intentionally, as an adult. It doesn't matter if you were formally convicted of this offence or not. There are no right answers; I am just interested in your view of things.

When I ask you about your thoughts, feelings, and experiences, I would like you to try and think of a recent situation that involved you setting a fire or maybe one that you can remember in enough detail to talk about.

Please do stop me if there is something that you feel uncomfortable talking about, or if you are feeling uncomfortable in any way. We can then stop the interview to give you a break or talk about something that you feel more comfortable talking about.

I would like to start by asking a bit about your background.

- Where did you grow up…who with (home life, family, parents, jobs etc).
- Can you describe to me your first memory of fire?
- Was it positive/negative?
- What other memories of fire do you have from your child hood?
- Family relationships with parents, siblings?
- How would you describe your childhood, was it happy?
- What about school? - School friends, bullying.
- Can you tell me about your first intimate relationship, how old were you, how would you describe that relationship?
- Did you start/have any interest in fire in your childhood?

I would like you to think back to about 6 months before the offence.

- How were things going in your life at this time?
- Were you happy/unhappy? What types of things were going on, any difficulties? If so how did you cope with them? (coping mechanisms)
- Did you have a job?
- What relationships did you have at that time…what about family? (social support systems?)
- What about leisure or other interests?

I would like you to think about the days leading up to the time when you set the fire.

- How were you feeling at this time?
- Had anything changed in your life that made you feel differently to how you felt 6 months before?
- Did you think about lighting the fire?
- If you did, how did you feel about this?
- Did it excite you or make you feel anxious?
- Were you happy or unhappy?
- Did you ever have thoughts about fire setting before this time?

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Telephone: 01227 827560 Email: M.Barnoux@kent.ac.uk

- What about plans (were there any or was it spontaneous/specific individual aimed at)? If so, how what were your thoughts and feelings about these ideas you had?

Now I would like you to think about the day you set the fire.

- What were you doing that day?
- How did you feel?
- Were you happy/unhappy?
- Was anything bothering you?
- Do you remember how you spent the day?
- What did you do?
- How did you feel immediately before you set the fire?
- What was going through your head?
- Do you remember saying anything to yourself?
- How did these thoughts make you feel?

Now I would like you to think about the actual fire as it was happening.

- How did you come to set the fire?
- Where, when, how, why?
- How did you feel about the fire once you had started it?
- Did you think it should be happening?
- How did you feel as the offence was taking place?
- What types of things were running through your head?
- What kind of things did you say to yourself that made it easier to go ahead and do the offence(s)?
- Did you stay to watch the fire?
- How did it make you feel seeing it?
- Did you call the fire brigade?
- Did you stay to watch the fire brigade?
- How did it make you feel watching the fire brigade?
- If not mentioned already, was there anyone else there at the time of the offence?
- What was their role, if any?

Now I would like to ask you about after you set the fire and your thoughts on it now looking back.

- How did the situation end?
- How did you feel afterwards?
- In your opinion, what affect did your actions have?
- How harmful do you feel the fire was?
- If there was a victim what did you say to them and what did you do?
- Did you talk to someone about the fire?
- What did they say to you and how did you feel about their comments?
- How serious do you think setting the fire was?

Now I would like you to tell me a little bit about your knowledge of fire and fire safety.

- Describe to me how you start a fire

- Do you know what causes a fire? How? What things do you need to
- make a successful fire?
- Do you know how to prevent fires? How would you do this?
- Do you know how to put out a fire? How would you do this?

Thank Participant.

The Chief Investigator: Dr Magali Barnoux, Tizard Centre, University of Kent, Cornwallis North East, Canterbury, CT2 7NZ.
Telephone: 01227 827560 Email: M.Barnoux@kent.ac.uk

Appendix H: Study two background information sheet

Background Information Questionnaire

Ok, I'm just going to start off the session by asking you a few questions about yourself. Some of the questions will ask you very general information about yourself (for example, your age and ethnicity), others will ask you about your current offence, and any previous offences that you may have. Please remember that the information that you give us will be looked after with great care. It will be kept in a secure place at the University, and a research number will replace your name so that no one can identify you (point out to participants their research identification number at the top of the page).

Please try and be as accurate as possible and ask me if you are unsure about how to answer any of the questions that I ask you.

Age _____

Remand Y/N

Which of the following best describes your ethnicity?

Indian ___

Pakistani ___

Bangladeshi ___

Chinese ___

Asian –

Other ___

Black – Caribbean ___

Black – African ___

Black – Other ___

Mixed Race ___

White - UK/Irish ___

White European ___

White – Other ___

The Chief Investigator: Dr Magali Barnoux, Tizard Centre, University of Kent, Cornwallis North East, Canterbury, CT2 7NZ.
Telephone: 01227 827560. Email: M.Barnoux@kent.ac.uk

Formal Education

Which of the following best describes the type of qualification that you have?

No qualification ___

Fifth form qualification ___

Sixth form qualification ___

Higher school qualification ___

Bachelor Degree ___

Higher Degree __

Occupation

At the time of your index offence were you:

Unemployed ___

In part-time work ___

In full-time work ___

A student ___

Retired ___

If you were employed at the time of your *index offence, what job did you have?

_____

Marital Status

At the time of your index offence were you:

Single ___

Married ___

Living with partner ___

Divorced or separated ___

*Note, for any persons who have a firesetting offence/incident in their history, but their index is a NON-FIRESETTING offence this would be reworded to "at the time of your arson or firesetting".

Offence Information: Current Convictions

Ok, I know a little bit about you, and why you are here. I'm just wondering whether you would be happy to fill me in on a few details. If you don't want to that's fine, I can just look up some of the information on file. We find that it is usually just easier to ask people face-to-face.

What year were you convicted of your index offence? _____

What sentence did you receive? _____

Please specify what the index offence(s) was _____

GO STRAIGHT TO "PREVIOUS CONVICTIONS NON-FIRESETTING" IF COMPARISON OFFENDER

Did your index offence/alleged index offence involve you setting a fire? Y/N

If yes, which of the following best describes what you set fire to?

A house or other residence that was unoccupied ___

A house or other residence that was occupied ___

A business or workplace that was occupied ___

A business or workplace that was unoccupied ___

A car that was unoccupied ___

A car that was occupied ___

Countryside (e.g., trees, woodland) ___

A person (including yourself) ___

Other (please specify) _____

Interviewer please note down any specific details below (i.e., relationship to any victims, type of building, motive):

_____

Ok, now I'd just like to ask you some information about any previous convictions that you may have.

Previous Convictions - Firesetting

Do you have any past convictions for offences that involved you setting a fire (e.g., arson, criminal damage)? Y/N

If "yes", how many previous convictions for offences that involved you setting a fire do you have?

____

Provide detail here:

(i.e., write down number and type of offences as well as conviction dates if participant

can recall them)

_____

For each offence, which of the following best describes what you set fire to?

Interviewer note down which offence is being referred to.

A house or other residence that was unoccupied ___

A house or other residence that was occupied ___

A business or workplace that was occupied ___

A business or workplace that was unoccupied ___

A car that was unoccupied ___

A car that was occupied ___

Countryside (e.g., trees, woodland) ___

A person (including yourself) ___

Other (please specify) _____

Interviewer please note down any specific details below (i.e., relationship to any victims, type of building, motive):

_____

Previous Convictions – Non-Firesetting

Do you have any past convictions for offences that do not involve firesetting? Y/N

If "yes", how many past convictions for offences that do not involve firesetting do you have? ____

Provide detail here:

(i.e., write down number and type of offences as well as conviction dates if participant can recall them).

Have you ever set a fire in prison/hospital or whilst in detention that you were caught for but have not been convicted of? Y/N

If "yes", how many fires like this have you set? ____

Provide detail here (i.e., relationship to any victims, target of the firesetting, motive):

Overall, how many deliberate fires do you think you have set since the age of 18 years?

We are only interested in deliberate fires. We are not interested in fires that you have set as part of organized events (e.g., bonfire night or barbeques)

_____

Have you ever taken part in any type of treatment programme for your offending? Y/N

If yes please specify below:

THANK PARTICIPANT

Appendix I: Study 3 participant information sheet and consent form (community-easy read)

INFORMATION SHEET-Community

Study Title: To evaluate expert opinions on the suitability of the assessment tools used to measure risk of deliberate firesetting behaviour in adults with intellectual and developmental disabilities.

Study 2a

You are being asked to take part in research.

You can talk to others about this research study. This can be anyone you like.

Please ask if there is anything that you do not understand.

The Chief Investigator: Dr Magali Barnoux, Tizard Centre, University of Kent, Cornwallis North East, Canterbury, CT2 7NZ. Telephone: 01227 827560. Email: M.Barnoux@kent.ac.uk

Who are the Researchers?

Josephine Collins

Josephine is supervised by Dr Magali Barnoux

and Professor Peter Langdon

- We are from the Tizard Centre University of Kent.

What do we want to find out?

- We have created a questionnaire about fire.
- We would like to find out if the questionnaire is suitable for people with learning disabilities and autistic spectrum disorders.
- We want to know if the questions are easy to understand.

- We think that this might help improve the assessment of people with learning disabilities and autism spectrum disorders.
- We want to know what you think about our ideas.

Do I have to take part in this research?

- NO, you do not have to take part in this research.
- If you say YES, you can change it to NO later on.

What happens if I say yes?

- You will be asked to join a focus group.
- The group will be made up of other adults with a learning disability and autistic spectrum disorders.
- There will be six people in the group.
- During the group, we will tell you about our project.
- We will tell you about the questionnaire we have created.
- We will ask you to discuss this with each other and see whether you think the questions are easy to understand.
- Some of the questions will be about fire.
- You do not need to answer the questions.
- We would like you to give us some feedback on how the questions are written.
- We will take your feedback and use it to change the questions.
- The focus group will take 1 hour.

- The meeting will be audio-recorded.

What happens if I take part and then change my mind?

- If you are currently receiving any care, treatment or support, this will not be affected.
- You do not need to give a reason.
- The researchers will not contact you again about the study.
- Data collected from you, up the point you no longer want to take part, **cannot** be removed.
- No more information will be collected from you.

Could bad things happen if I do the research?

- We do not think it likely that anything bad will happen.
- If anything is upsetting, we will talk to you and try to help you.

Could good things happen if I do the research?

- By saying yes, you will help us to create a questionnaire to use with adults with learning disabilities and autistic spectrum disorders.
- You will help us to improve the assessment of people with learning disabilities and autistic spectrum disorders.

Will information about me be kept private?

- Yes, the information we have will be kept private, but:
  - People who are in charge of making sure that the researchers are following the rules may look at our records.
  - If you have a care team, we will tell them if we think you are going to hurt yourself or someone else.
  - We will tell your care team or the police if you talk to us about a crime you committed that you have never spoken about before.

What happens at the end?

- We will give you some information about the study to keep.
- The results will be written about.
- If you would like, we can come and tell you the results.
- We may write the words you have said, but we will never include your name.

Has the research been checked?

- People have looked at the study to check it is safe.
- People have also checked to make sure that everyone gets good information before they start.
- The people who have checked this project are called an NHS Research Ethics Committee.

What if you are unhappy about the research?

- You can talk to the researchers first if you want.
- You can make a complaint to the University of Kent.
- We will give you information about how to complain.
- If you have one, you can talk to your Psychiatrist.
- If you have support staff, you can talk to them.
- If you have a social worker or psychologist, you can talk to them too.
- You can talk to family or a friend.
- If you talk to someone about the research, it might be helpful to share this information sheet with them.

Who can I speak to if I want more information?

- If you want any extra information, have some further questions, or you wish to complain, you can call or write to:

Miss Josephine Collins
University of Kent, Tizard Centre
Cornwallis North East
Canterbury
Kent
CT2 7NZ

Her phone number is: 01227 824770
Her email address is: jc2009@kent.ac.uk

OR

Professor Peter Langdon:
Peter.Langdon@warwick.ac.uk

Dr Magali Barnoux: M.Barnoux@kent.ac.uk

Participant Consent Form-Community

Study 2a: To evaluate expert opinions on the suitability of the assessment tools used to measure risk of deliberate firesetting behaviour in adults with intellectual and developmental disabilities.

Participant I.D. Number:

Please, initial the box if you agree with the sentence.

I understand the information sheet that was explained to me by Josephine Collins. ☐

I have been able to ask questions. ☐

I know that I can stop at any time. I do not need a reason for stopping. ☐

I understand that people from the NHS may check to make sure the researchers are following the rules. ☐

I agree to take part in the study. ☐

Please tick if you would like a summary of the results. ☐

Your name	Date	Signature
Name of the person who helped you	Date	Signature

Participants to be given a copy of the completed consent form and a copy will be placed in their medical records.

The Chief Investigator: Dr Magali Barnoux, Tizard Centre, University of Kent, Cornwallis North East, Canterbury, CT2 7NZ.
Telephone: 01227 827560. Email: M.Barnoux@kent.ac.uk

Easy Read Participant Consent Form (Community) – Study 2a – Version 1.1 23/06/2020
IRAS ID: 255255

Appendix J: Study 3 participant information sheet and consent form (inpatient-easy read)

University of Kent | Tizard Centre

INFORMATION SHEET-Inpatient

Study Title: To evaluate expert opinions on the suitability of the assessment tools used to measure risk of deliberate firesetting behaviour in adults with intellectual and developmental disabilities.

Study 2a

You are being asked to take part in research.

You can talk to others about this research study. This can be anyone you like.

Please ask if there is anything that you do not understand.

The Chief Investigator: Dr Magali Barnoux, Tizard Centre, University of Kent, Cornwallis North East, Canterbury, CT2 7NZ. Telephone: 01227 827560. Email: M.Barnoux@kent.ac.uk

Who are the Researchers?

Josephine Collins

Josephine is supervised by Dr Magali Barnoux

and Professor Peter Langdon

- We are from the Tizard Centre University of Kent.

What do we want to find out?

- We have created a questionnaire about fire.
- We would like to find out if the questionnaire is suitable for people with learning disabilities and autistic spectrum disorders.
- We want to know if the questions are easy to understand.

- We think that this might help improve the assessment of people with learning disabilities and autism spectrum disorders.
- We want to know what you think about our ideas.

Do I have to take part in this research?

- NO, you do not have to take part in this research.
- If you say YES, you can change it to NO later on.

What happens if I say yes?

- You will be asked to join a focus group.
- The focus group will be made up of other patients from the hospital who have a learning disability and autistic spectrum disorder.
- You will be asked if you would like a member of support staff to come to the focus group with you.
- If you say yes, they will support you in telling the group what you think.
- If you say no, they will wait outside the room for you to make sure yourself and others are safe.
- There will be six people in the group.
- During the group, we will tell you about our project.
- We will tell you about the questionnaire we have created.
- We will ask you to discuss this with each other and see whether you think the questions are easy to understand.
- Some of the questions will be about fire.

- You do not need to answer the questions.
- We would like you to give us some feedback on how the questions are written.
- We will take your feedback and use it to change the questions.
- The focus group will take 1 hour.
- The meeting will be audio-recorded.

What happens if I take part and then change my mind?

- Your care and treatment will not be affected.
- You do not need to give a reason.
- The researchers will not contact you again about the study.
- Data collected from you, up the point you no longer want to take part, **cannot** be removed.
- No more information will be collected from you.

Could bad things happen if I do the research?

- We do not think it likely that anything bad will happen.
- If anything is upsetting, we will talk to you and try to help you.

Could good things happen if I do the research?

- By saying yes, you will help us to create a questionnaire to use with patients with learning disabilities and autistic spectrum disorders.

- You will help us to improve the assessment of people with learning disabilities and autistic spectrum disorders.

Will information about me be kept private?

- Yes, the information we have will be kept private, but:
  - People who are in charge of making sure that the researchers are following the rules may look at our records.
  - We will tell your care team if we think you are going to hurt yourself or someone else.
  - We will tell your care team if you tell us plans to escape.
  - We will tell your care team if you talk to us about a crime you committed that you have never spoken about before.

What happens at the end?

- We will give you some information about the study to keep.
- The results will be written about.
- If you would like, we can come and tell you the results.
- We may write the words you have said, but we will never include your name.

Has the research been checked?

- People have looked at the study to check it is safe.
- People have also checked to make sure that everyone gets good information before they start.
- The people who have checked this project are called an NHS Research Ethics Committee.

What if you are unhappy about the research?

- You can talk to the researchers first if you want.
- You can make a complaint to the University of Kent.
- We will give you information about how to complain.
- You can talk to ward staff.
- You can talk to the Patient Advice Liaison Service (PALS). [SITE SPECIFIC COMPLAINTS CONTACT DETAILS TO BE INSERTED]

Who can I speak to if I want more information?

- If you want any extra information, have some further questions, or you wish to complain, you can call or write to:

Miss Josephine Collins

University of Kent, Tizard Centre
Cornwallis North East
Canterbury
Kent
CT2 7NZ

Her phone number is: 01227 824770
Her email address is: jc2009@kent.ac.uk

OR

Professor Peter Langdon: P.E.Langdon@kent.ac.uk

Dr Magali Barnoux: M.Barnoux@kent.ac.uk

Participant Consent Form-Inpatient

Study 2a: To evaluate expert opinions on the suitability of the assessment tools used to measure risk of deliberate firesetting behaviour in adults with intellectual and developmental disabilities.

Participant I.D. Number:

Please, initial the box if you agree with the sentence.

I understand the information sheet that was explained to me by Josephine Collins. ☐

I have been able to ask questions. ☐

I know that I can stop at any time. I do not need a reason for stopping. My care and treatment will not be affected. ☐

I understand that people from the NHS may check to make sure the researchers are following the rules. ☐

I am happy for the researcher to look at my hospital records. ☐

I am happy for you to tell my care team I am taking part in the research study. ☐

I agree to take part in the study. ☐

Please tick if you would like a summary of the results. ☐

Your name	Date	Signature
Name of the person who helped you	Date	Signature

Participants to be given a copy of the completed consent form and a copy will be placed in their medical records.

The Chief Investigator: Dr Magali Barnoux, Tizard Centre, University of Kent, Cornwallis North East, Canterbury, CT2 7NZ.
Telephone: 01227 827560. Email: M.Barnoux@kent.ac.uk

Easy Read Participant Consent Form (Inpatient) – Study 2a – Version 1.0 30/04/2019
IRAS ID: 255255

Appendix K: Study 3 participant information sheet and consent form

Information Sheet

Study 2a

To evaluate expert opinions on the suitability of the assessment tools used to measure risk of deliberate firesetting behaviour in adults with intellectual and developmental disabilities.

The Chief Investigator: Dr Magali Barnoux, Tizard Centre, University of Kent, Cornwallis North East, Canterbury, CT2 7NZ.
Telephone: 01227 827560. Email: M.Barnoux@kent.ac.uk

You are being invited to take part in a research study. Before you decide if you would like to take part, it is important for you to understand why the research is being done and what it will involve. Please take the time to read this information sheet carefully. If you have any questions or would like some more information, please ask.

Who is doing the research?

The research is being conducted by Josephine Collins, a PhD student from the Tizard Centre at the University of Kent under the academic supervision of Dr Magali Barnoux (Lecturer in Forensic Psychology and Intellectual and Developmental Disabilities) and Professor Peter Langdon (Professor of Clinical and Forensic Psychology).

Why are we doing this research?

The Firesetting Intervention Programme for Mentally Disordered Offenders (FIP-MO; Gannon et al, 2013) is currently being used to treat individuals with IDD in secure hospitals. The FIP-MO recommends the following fire-specific assessment tools to inform assessment of an individual's fire-specific treatment needs: Fire Interest Ratings Scale (Murphy & Clare, 1996), Fire Attitudes Scale (Muckley, 1997) and the Identification with Fire Questionnaire (Gannon, Ó Ciardha, Doley & Barnoux, 2011). However, none of the recommended fire-specific assessment tools have been standardised with a population of offenders with IDD. Clinicians are therefore unable to accurately assess and formulate a patient's risk of future firesetting behaviour. This study is focused on evaluating the current assessment tools being used to predict future risk of deliberate firesetting behaviour for adults with IDD. The purpose of this study is to collect data from clinicians who have expertise in working with offenders with IDD and from offenders with IDD on their views of the current assessment tools being used and how these could be adapted to meet the needs of individuals with IDD. We hope that the results of this research will contribute to the development of an adapted assessment tool that is both valid and reliable when used to assess patients with intellectual and developmental disabilities. Therefore, leading to improvements in risk formulation and treatment planning for this sub-group of offenders.

Why have you been chosen to take part?

We are asking qualified clinicians (e.g. Psychologists, Psychiatrists, Occupational Therapist or other qualified professionals) who have experience of working with individuals with intellectual and developmental disabilities to be involved in the study. By sharing your knowledge, we hope to develop a valid and reliable assessment tool that can be used to measure risk of deliberate firesetting behaviour in adults with IDD.

Do you have to take part?

You do not have to participate in the study. Your decision to take part will have no bearing on your career progression at your place of work. If you do decide to take part in the study, you will be given this information sheet to keep and will be asked to sign a consent form. If you give your consent, you are free to withdraw from the study at any time without reason and the researcher will not contact you again regarding the study.

What will happen if you do decide to take part?

If you do decide to take part, you will be asked to sign a consent form and will be asked to return this to the researcher via email. The technique that will be used to collect the data is called the E-Delphi technique and is a multistage process commonly used in medical, nursing and health service research. The researcher will contact you again via email. Initially, a brief review of the project will be provided along with the background literature and information about the assessment tools currently being used. You will then be asked to consider the use of the assessment tools with a population of offenders with IDD. You will be asked to comment on the validity of the assessment tools and whether any further characteristics and treatment needs should be included in the assessment. You will be asked about each item of the assessment tools and the language used. Following this first round of data collection, a decision will then be made as to which items are relevant or not and which items require adaptation. The E-Delphi technique will be used to obtain consensus on the opinion of several clinicians through a series of structured questionnaires. As a part of the process, the responses from the first questionnaire will be fed back in a summarised form to all participants. The questionnaires will be emailed to you and should take no longer than an hour to complete. If you would like more time or require a break between answering questions this will not be a problem. Further, if there are any questions you do not want to answer you are free to leave these blank.

Will your taking part in the study be kept confidential?

All your responses to the questionnaires will be returned in an anonymized format to the researcher and all information about yourself will remain confidential. Your line manager or any other patient or staff member will not be informed of your participation in the research. The data collected from yourself will be stored securely at the University of Kent. The only people who will have access to the data is the researcher and the research supervisors. Further, your consent form will be stored separately from the data will have collected from yourself.

What happens following data collection?

The results of the study will be used to devise an adapted assessment tool for use with adults who have intellectual and developmental disabilities and a history of deliberate firesetting behaviour. This tool will then be piloted with a sample of offenders with intellectual and

developmental disabilities in a further study. If the research goes well, we will write up the results for publication in a scientific journal and will talk about it at national and international conferences. Data will be stored at the University of Kent for up to 5 years after publication.

Ethical Approval

This study has been reviewed and approved by an NHS Ethics Committee and the Health Research Association.

Thank you for taking your time to review the information sheet and consider participating in the research study.

This information sheet is for yourself to keep. If you would like to participate in the study you will be asked to sign the consent form and return it to, Josephine Collins at the below email address.

If you have any questions about the research or would like to receive further information, please feel free to contact Josephine Collins via telephone or email.

Telephone: 01227 824 770

Email: jc2009@kent.ac.uk

If you have any ethical concerns regarding the conduct of the research or wish to make a complaint, please contact the chair of ethics at the Tizard Centre, University of Kent, Canterbury, CT2 7NZ.

Alternatively, please contact Professor Peter Langdon or Dr Magali Barnoux (P.E.Langdon@kent.ac.uk/ M.Barnoux@kent.ac.uk).

CONSENT FORM: Study 2a

Study Title: To evaluate expert opinions on the suitability of the assessment tools used to measure risk of deliberate firesetting behaviour in adults with Intellectual and Developmental Disabilities.

Participant Identification Number: ☐

Date:_____

Read the following statements and think about whether you agree. This form has one page.

☐ I have understood the information sheet (Version 1.1 Date: 30 April 2019 – Study 2a).

☐ I am a qualified healthcare professional.

☐ I have experience of working with patients with intellectual and developmental disabilities.

☐ I have asked all my questions.

☐ I understand that I can leave the research at any time I choose. If I withdraw from the study, I agree that the researchers can carry on using the information they have already collected from me.

☐ I understand and agree for professionals working within regulatory authorities or from the NHS may check the data collected from me to make sure the researchers are working ethically.

☐ I agree to take part in this research project.

If you agree to the above statements, please sign your name below:

Your signature: _____

Print your name:_____

Participants to be given a copy of the completed consent form.

The Chief Investigator: Dr Magali Barnoux, Tizard Centre, University of Kent, Cornwallis North East, Canterbury, CT2 7NZ.
Telephone: 01227 827560. Email: M.Barnoux@kent.ac.uk

Appendix L: Study 4 participants information sheet and consent form (community)

INFORMATION SHEET-Community

Study Title: The development of an adapted assessment tool to measure risk of deliberate firesetting behaviour in adults with intellectual and developmental disabilities.

Study 2b

You are being asked to take part in research.

You can talk to others about this research study. This can be anyone you like.

Please ask if there is anything that you do not understand.

The Chief Investigator: Dr Magali Barnoux, Tizard Centre, University of Kent, Cornwallis North East, Canterbury, CT2 7NZ. Telephone: 01227 827560. Email: M.Barnoux@kent.ac.uk

Who are the Researchers?

Josephine Collins

Josephine is supervised by Dr Magali Barnoux

and Professor Peter Langdon

We are from the Tizard Centre at the University of Kent.

What do we want to find out?

- We would like to ask you to complete a new assessment.
- This assessment has not been used before.
- The assessment will help us find out more about adults with learning disabilities/autism spectrum disorders who have set a fire.

- We would like to find out what people are thinking before they set a fire.
- We would like to find out how people feel before they set a fire.
- We would like to find out how people behave when setting a fire.
- We would like to find out how people who set fires are like each other.
- We would like to find out how people who set fires are different to each other.
- We think this might help us to understand if people who have learning disabilities and autistic spectrum disorders have different treatment needs.
- We think that this might help improve hospital and community care.

Do I have to take part in this research?

- NO, you do not have to take part in this research.
- If you say YES, you can change it to NO later on.

What happens if I decide to take part and then change my mind?

- Your care and treatment will not be affected.
- You do not need to give a reason.
- The researchers will not contact you again about the study.
- Any data collected from you will be destroyed.
- No more information will be collected from you.

What happens if I say yes?

- You will be asked some general questions about yourself (e.g. age, ethnicity).
- We would like to speak to your doctor to check your personal details, like your date of birth, to make sure it is right.
- You will be asked some questions about fire.
- You will be asked some questions about your thoughts, feelings and behaviour.
- This should take 1 hour.
- You can ask to stop at any time.

Could bad things happen if I do the research?

- We do not think it likely that anything bad will happen.
- If anything is upsetting, we will talk to you and try to help you.

Could good things happen if I do the research?

- By saying yes, you will help us to understand more about people who set fires.
- You will help us understand if people with learning disabilities and autistic spectrum disorders need different treatment to other people.

Will information about me be kept private?

- Yes, the information we have will be kept private, but:
  - People who are in charge of making sure that the researchers are following the rules may look at our records.
  - We will tell your care team if we think you are going to hurt yourself or someone else.
  - We will tell your care team if you talk to us about a crime you committed that you have never spoken about before.

What happens at the end?

- We will give you some more information about the study for you to keep.
- The results will be written about.
- If you would like, we can come and tell you the results.
- We may write the words you have said, but we will never include your name.

Has the research been checked?

- People have looked at the study to check it is safe.
- People have also checked to make sure that everyone gets good information before they start.
- The people who have checked this project are called an NHS Research Ethics Committee.

What if you are unhappy about the research?

- You can talk to the researchers first if you want.
- You can make a complaint to the University of Kent.
- We will give you information about how to complain.
- You can talk to your Psychiatrist.
- If you have support staff, you can talk to them.
- If you have a social worker or psychologist, you can talk to them too.
- You can talk to family or a friend.
- If you talk to someone about the research, it might be helpful to share this information sheet with them.

Who can I speak to if I want more information?

- If you want any extra information, have some further questions, or you wish to complain, you can call or write to:

Miss Josephine Collins
University of Kent, Tizard Centre
Cornwallis North East
Canterbury
Kent
CT2 7NZ

Her phone number is: 01227 824770
Her email address is: jc2009@kent.ac.uk

OR

Professor Peter Langdon: P.E.Langdon@kent.ac.uk

Dr Magali Barnoux: M.Barnoux@kent.ac.uk

Participant Consent Form-Community

Study 2b: The development of an adapted assessment tool to measure risk of deliberate firesetting behaviour in adults with intellectual and developmental disabilities.

Participant I.D. Number:

Please, initial the box if you agree with the sentence.

I understand the information sheet that was explained to me by [insert name]. ☐

I have been able to ask questions. ☐

I know that I can stop at any time. I do not need a reason for stopping. My care and treatment will not be affected. ☐

I understand that people from the NHS may check to make sure the researchers are following the rules. ☐

I am happy for the researchers to talk to my doctor about me. ☐

I am happy for you to tell my care team I am taking part in the research study. ☐

I agree to take part in the study. ☐

Please tick if you would like a summary of the results. ☐

Your name	Date	Signature
Name of the person who helped you	Date	Signature

Participants to be given a copy of the completed consent form and a copy will be placed in their medical records.

The Chief Investigator: Dr Magali Barnoux, Tizard Centre, University of Kent, Cornwallis North East, Canterbury, CT2 7NZ.
Telephone: 01227 827560. Email: M.Barnoux@kent.ac.uk

Easy Read Participant Consent Form (Community) – Study 2b – Version 1.2 23/06/2020
IRAS ID: 255255

Appendix M: Study 4 participants information sheet and consent form (inpatient)

University of Kent | Tizard Centre

INFORMATION SHEET-Inpatient

Study Title: The development of an adapted assessment tool to measure risk of deliberate firesetting behaviour in adults with intellectual and developmental disabilities.

Study 2b

You are being asked to take part in research.

You can talk to others about this research study. This can be anyone you like.

Please ask if there is anything that you do not understand.

The Chief Investigator: Dr Magali Barnoux, Tizard Centre, University of Kent, Cornwallis North East, Canterbury, CT2 7NZ. Telephone: 01227 827560. Email: M.Barnoux@kent.ac.uk

Who are the Researchers?

Josephine Collins

Josephine is supervised by Dr Magali Barnoux

and Professor Peter Langdon

We are from the Tizard Centre at the University of Kent.

What do we want to find out?

- We would like to ask you to complete a new assessment.
- This assessment has not been used with patients before.

- The assessment will help us find out more about adults who are in hospital because they have set a fire.
- We would like to find out about people with Learning Disabilities and Autism Spectrum Disorder.
- We would like to find out what people are thinking before they set a fire.
- We would like to find out how people feel before they set a fire.
- We would like to find out how people behave when setting a fire.
- We would like to find out how people who set fires are like each other.
- We would like to find out how people who set fires are different to each other.
- We think this might help us to understand if people who have learning disabilities and autistic spectrum disorders have different treatment needs.
- We think that this might help improve hospital care.

Do I have to take part in this research?

- NO, you do not have to take part in this research.
- If you say YES, you can change it to NO later on.

What happens if I decide to take part and then change my mind?

- Your care and treatment will not be affected.
- You do not need to give a reason.
- The researchers will not contact you again about the study.
- Any information already collected will be destroyed.
- No more information will be collected from you.

What happens if I say yes?

- You will be asked some general questions about yourself (e.g. age, ethnicity).
- We would like to speak to your doctor to check your personal details, like your date of birth, to make sure it is right.
- You will be asked some questions about fire.
- You will be asked some questions about your thoughts, feelings and behaviour.
- This should take 1 hour.
- You can ask to stop at any time.

Could bad things happen if I do the research?

- We do not think it likely that anything bad will happen.
- If anything is upsetting, we will talk to you and try to help you.

Could good things happen if I do the research?

- By saying yes, you will help us to understand more about people who set fires.
- You will help us understand if people with learning disabilities and autistic spectrum disorders need different treatment to other people.

Will information about me be kept private?

- Yes, the information we have will be kept private, but:
    - People who are in charge of making sure that the researchers are following the rules may look at our records.
    - We will tell your care team if we think you are going to hurt yourself or someone else.
    - We will tell your care team if you tell us plans to escape.
    - We will tell your care team if you talk to us about a crime you committed that you have never spoken about before.

What happens at the end?

- We will give you some more information about the study for you to keep.
- The results will be written about.
- If you would like, we can come and tell you the results.
- We may write the words you have said, but we will never include your name.

Has the research been checked?

- People have looked at the study to check it is safe.
- People have also checked to make sure that everyone gets good information before they start.
- The people who have checked this project are called an NHS Research Ethics Committee.

What if you are unhappy about the research?

- You can talk to the researchers first if you want.
- You can make a complaint to the University of Kent.
- We will give you information about how to complain.
- You can talk to ward staff.
- You can contact the Patient Advice Liaison Service (PALS). [SITE SPECIFIC COMPLAINTS CONTACT DETAILS TO BE INSERTED]

Who can I speak to if I want more information?

- If you want any extra information, have some further questions, or you wish to complain, you can call or write to:

Miss Josephine Collins
University of Kent, Tizard Centre
Cornwallis North East
Canterbury
Kent
CT2 7NZ

Her email address is: jc2009@kent.ac.uk

OR

Professor Peter Langdon: P.E.Langdon@kent.ac.uk

Dr Magali Barnoux: M.Barnoux@kent.ac.uk

Participant Consent Form-Inpatient

Study 2b: The development of an adapted assessment tool to measure risk of deliberate firesetting behaviour in adults with intellectual and developmental disabilities.

Participant I.D. Number:

Please, initial the box if you agree with the sentence.

I understand the information sheet that was explained to me by [insert name]. ☐

I have been able to ask questions. ☐

I know that I can stop at any time. I do not need a reason for stopping. My care and treatment will not be affected. ☐

I understand that people from the NHS may check to make sure the researchers are following the rules. ☐

I am happy for the researchers to talk to my doctor about me. ☐

I am happy for you to tell my care team I am taking part in the research study. ☐

I agree to take part in the study. ☐

Please tick if you would like a summary of the results. ☐

Your name	Date	Signature

Name of the person who helped you	Date	Signature

Participants to be given a copy of the completed consent form and a copy will be placed in their medical records.

The Chief Investigator: Dr Magali Barnoux, Tizard Centre, University of Kent, Cornwallis North East, Canterbury, CT2 7NZ.
Telephone: 01227 827560. Email: M.Barnoux@kent.ac.uk

Easy Read Participant Consent Form (Inpatient) – Study 2b – Version 1.2 23/06/2020
IRAS ID: 255255

Appendix N: Accepted Manuscript: Adults with intellectual disabilities and/or autism who deliberately set fires: A systematic review

[REDACTED]

Appendix O: Published Manuscript: A Preliminary Firesetting Offence Chain for Adults with Intellectual and other Developmental Disabilities

[REDACTED]

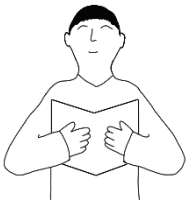
Appendix P: Published Manuscript: The development of the Adapted Firesetting Assessment Scale

[REDACTED]

Appendix Q: Submitted Manuscript: The Adapted Firesetting Assessment Scale (AFAS): Reliability and Validity

[REDACTED]

Appendix R: Adapted Firesetting Assessment Scale



We are going to read a number of statements

together

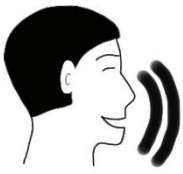
You will be asked if you agree or disagree with each statement

Agree

Disagree

There is no right or wrong answer

Please ask if you have a question



Please tell me if you do not understand

Fire is very important to me.

Agree | Not Sure | Disagree

I would be happy if I never saw a fire again

Agree | Not Sure | Disagree

Fire is a big part of my life

Agree | Not Sure | Disagree

I need fire in my life

Agree | Not Sure | Disagree

I would describe myself as someone who starts fires

Agree | Not Sure | Disagree

I am nobody without fire
(e.g. nobody notices me)

Agree | Not Sure | Disagree

I must have fire in my life

Agree | Not Sure | Disagree

Most people carry a lighter with them

Agree | Not Sure | Disagree

People often set fires when they are angry

Agree | Not Sure | Disagree

I would like to work as a firefighter

Agree | Not Sure | Disagree

I like watching fires get bigger

Agree | Not Sure | Disagree

I have put a fire out

Agree | Not Sure | Disagree

They should teach you how to stop fires at school

Agree | Not Sure | Disagree

Most people's friends have started a fire or two

Agree | Not Sure | Disagree

The police talk to lots of people about setting fires

Agree | Not Sure | Disagree

I know a lot about how to stop a fire

Agree | Not Sure | Disagree

Setting a small fire can make you feel better

Agree | Not Sure | Disagree

I can stop a fire from getting too big

Agree | Not Sure | Disagree

I get bored easily

Agree | Not Sure | Disagree

People who set fires should be sent to prison

Agree | Not Sure | Disagree

I often copy what my friends do without thinking

Agree | Not Sure | Disagree

If you have problems, a small fire can help you sort them out

Agree | Not Sure | Disagree

Most people have had an accident at home/in hospital that involved fire

Agree | Not Sure | Disagree

Parents/carers should spend money on buying a fire extinguisher

Agree | Not Sure | Disagree

Most people have set a small fire for fun

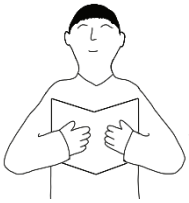
Agree | Not Sure | Disagree

I usually copy what my friends do

Agree | Not Sure | Disagree

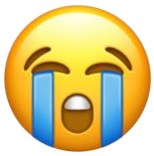
Playing with a lighter can be dangerous

Agree | Not Sure | Disagree



We are going to read a number of statements together

You will be asked to rate how you would feel in the following situations.



Very upset/scared

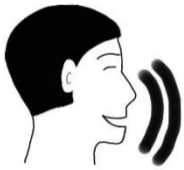
A little upset

OK

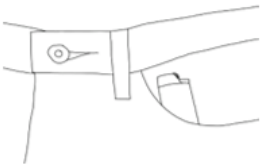
Excited/fun

There is no right or wrong answer

Please ask if you have a question



Please tell me if you do not understand



Having a lighter in my pocket

Very upset Scared | Little upset Scared | OK | Excited Fun

Watching fire burn in a fireplace

Very upset Scared | Little upset Scared | OK | Excited Fun

Watching a bonfire on fireworks night

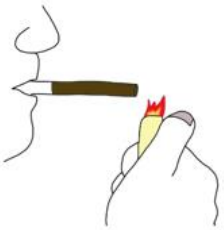
Very upset Scared | Little upset Scared | OK | Excited Fun

Seeing a firefighter put their uniform on (e.g. helmet)

Very upset Scared | Little upset Scared | OK | Excited Fun

Watching a fire engine come down the road

Very upset Scared | Little upset Scared | OK | Excited Fun



Using a lighter to start a cigarette

Very upset Scared | Little upset Scared | OK | Excited Fun

Watching a house burn down

Very upset Scared | Little upset Scared | OK | Excited Fun

Being questioned by the police about a fire that has happened in the neighbourhood

Very upset Scared | Little upset Scared | OK | Excited Fun

Watching people run from a fire

Very upset Scared | Little upset Scared | OK | Excited Fun

Watching a person with his/her clothes on fire

Very upset Scared | Little upset Scared | OK | Excited Fun

Using a lighter to set fire to a building

Very upset Scared | Little upset Scared | OK | Excited Fun

Seeing a building on fire in the news

Very upset Scared | Little upset Scared | OK | Excited Fun

Seeing a firefighter use water to put a fire out

Very upset Scared | Little upset Scared | OK | Excited Fun

Giving a lighter back to someone

Very upset Scared | Little upset Scared | OK | Excited Fun